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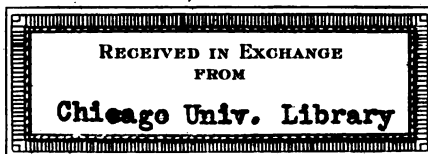
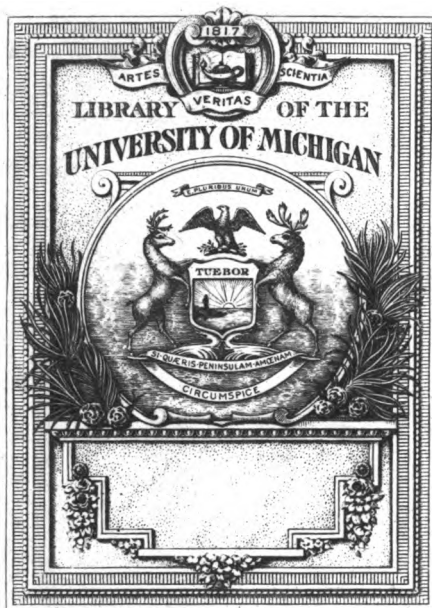
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PERSIAN GULF PILOT.

SUPPLEMENT.
(1875)



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PERSIAN GULF PILOT.

SUPPLEMENT.

COAST OF BALÚCHISTÁN, FROM KARÁCHI TO
RÁS-AL-KÚH, OR MAKRÁN COAST.

BY

LIEUTENANT A. W. STIFFE,

OF H.M. LATE INDIAN NAVY.

PUBLISHED BY ORDER OF THE LORDS COMMISSIONERS OF THE ADMIRALTY.

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ADVERTISEMENT.

This Supplement to the Persian Gulf Pilot contains sailing directions for the coast, generally known as the Makrán coast, between Karáchi and Rás-al-Kúh, the entrance point of the Persian Gulf.

It is written, in most part, from the personal experience and note books of the author, Lieut. A. W. Stiffe, late Indian Navy, 1864-1873, and where other authorities have been made use of (as Captain Haines' memoir), they are quoted by him in a foot note.

F. J. E.

Hydrographic Office, Admiralty, London.
December 1874.

NOTICE.

The following remarks are necessary in reference to the names of places, and the prefixes used by the natives :

Al-, ar-, an-, &c.	-	Forms of the Arabic definite article.
Jabal- (Arabic) }	-	A mountain or hill.
Kúh- (Persian) }		
Jazírah-, Jazírat-	-	Island or peninsula.
Khaur- - -	-	Creek or channel.
Rás- - -	-	A projecting point either above or under water.
Shúr - -	-	Low clay hills.

It should be noted there is great fluctuation in the spelling and pronunciation, k is often sounded like g, or j, or even y, also the letters l and r, p and f are commonly permutable.

COINS.

The Indian rupee, powlah, and copper pie, the Maskat (German) dollar, and Persian keráns all pass current, the latter chiefly in the western districts. The Indian coinage is now probably best known. Some Venetian gold coins are also in circulation.

The unit of weight is the maund or mán, which, on the coast, varies as follows:* Gwádar 10½ lb., Chahbár 11 lb., Pasní 9½ lb. It is divided into 24 parts called kiass. The Indian maund, or English weights, are known at the telegraph stations.

* Col. Ross' Memoir.

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PERSIAN GULF PILOT.

SUPPLEMENT.

CHAPTER I.

GENERAL DESCRIPTION.

The region of Makrán,* properly so called, extends from the Malán or Hárá mountains to the neighbourhood of the Sadaich river, its boundaries

* Partly compiled from Colonel Ross' valuable "Memorandum on Makrán."

The name of Makrán appears to convey a depreciatory idea, and is said to have the same meaning as the word *Ichthyophagi*, or fish-eaters, of the Greeks, and to be derived from Mahi-Khúrán, but this is not certain.

It was anciently called Gedrosia, and its coast was the first part of the Indian sea navigated by European vessels: viz., the fleet of Alexander the Great, under Nearchus, which sailed from the Indus to the Euphrates in the year 326, B.C. He left the river on the 1st October and reached Badis, which is identified with Jáshak, on the 17th December, his ships having suffered much from famine, &c. See Dean Vincent's "Commerce and Navigation of the Ancients in the Indian Ocean," 1807. From that time the coast was hardly ever visited by Europeans, except the Portuguese, who appear to have ravaged the coast when they held Hormúz, until 1774, in which year an expedition under Commodore Robinson, of the H. C. Marine, made a rough exploration of the coast.

In 1809 Captain Grant, Bombay Army, made a journey along the western part of the coast, and in 1829 a further survey was made by Captains Brucks and Haines of the Indian Navy.

In 1861 the project of a land telegraph along the coast, to form part of the link between England and India, led to the resumption of the exploration, and the whole seaboard has now been repeatedly travelled along, and portions of the interior visited, and the whole for the first time delineated in a map. Large portions of the interior are, however, still quite unknown. The operations of landing telegraph material, establishment of stations, laying cables, &c., have now made us practically well acquainted with the navigation of the coast.

The history of Makrán is obscure; the following is abridged from Colonel Ross' account. It was in early days probably by turn a province of the Great Persian kingdom, and temporarily independent when that empire was disturbed. It also pro-

not being very clearly defined; and at the present time it may be considered rather a geographical than a political division. The whole coast between Jášhak and Sunmiyáni or even to the Habb river has, however, become generally known as the Makrán coast, which designation will here be retained as a convenient one.

The country is subdivided into a number of petty states, under the control of chiefs, hitherto quasi-independent, but who are now all under the sovereignty of Persia, or of the Khán of Kalát, their dependence on these powers being, however, confined almost entirely to the payment of a certain amount of tribute. The recently defined boundary between Persia and Kalát is shown on the new chart. Of the possessions of the Maskat Arabs on this coast, Gwádar, with its small adjoining district, is the only place now held by them.

The inhabitants are of different Makráni and Balúchí tribes, or more properly, clans, and vary much, both in their physical and moral qualities. They are a singularly poor, simple, and primitive race, hospitable to strangers, and faithful in the performance of duties they may undertake. Although brave, they are averse to close fighting in their numerous blood feuds. Many are found among the mercenaries of the petty independent states of India. They are capable of enduring great fatigue and privation, are friendly, and now accustomed to Europeans. The language is a dialect of Persian, and approximates the more nearly to that tongue as the western frontier is approached; it is hardly a written language, and Persian is generally used in correspondence.

In Gwádar, and some other places on the coast, there are also a few Arab settlers, and Banyans from Sind or Kach, by whom the very limited trade of the country is chiefly carried on.

bably was annexed to the great Muhammadan empire about A.D. 711, by Hejaj, Governor of Basrah, who at that time also invaded Sind, and for upwards of two centuries it was held as a division of the province of Persia under the Kaliphate. In the 12th century the little town of Tís was peopled by Arab traders.

The traditions of the present inhabitants extend back to the period succeeding the death of Shah 'Abbas in 1628, at which time the whole country was governed by rulers termed Maliks, whose capital was either Kej or Geh. Their power was subverted by the Boleydi family, whose dynasty lasted at Kej until about 1738, when they were in turn overthrown by the Gitchki family, who became vassals of Persia under Nadir Shah, when he conquered the whole of Balúchistán and Makrán. After the death of Nadir in 1747, most part of Makrán was conquered by the ruler of Kalát, who rendered the country tributary, and established a Naib at Kej. Since that time the boundaries of Persia and Kalát have fluctuated, with a varying belt of independent territory between, until their common frontier was recently settled under English arbitration.

The Arabs of 'Omán occupied Chahbár and Gwádar at the latter part of the last century, but have been recently dispossessed of the former place by the Persians, during the late civil war in 'Omán. In recent times they also held Jášhak and its dependencies from the Persian government.

The population is everywhere sparse, and has been estimated not to exceed 200,000 up to the 27th parallel of latitude. They live in mat huts, which are easily removeable, so that a village is often only a temporary encampment. In more permanent settlements there is a tower or fort in addition to the huts, and it is only at the towns of Gwádar and Sunmiyáni that a proportion of masonry or even mud houses is found.

General aspect of Coast.—From Jáshak to Sunmiyáni the coast extends in a general east and west direction for nearly 500 miles, in a nearly direct, but somewhat convex line. Owing to the small rainfall, the salt nature of the soil, and the physical conformation of the country, the coast is almost entirely desert, and presents a succession of arid clay plains, impregnated with saliferous matter, and intersected by water courses. From these plains rise precipitous table-hills, with most fantastic peaks and pinnacles, varying in height above the sea from 2,000 feet at Rás-Malán to hillocks of 20 or 30 feet high. Farther inland, other ranges of mountains of varying height extend parallel to the coast and to each other, all apparently bare of vegetation.

The coast line is deeply indented into bays, but its most characteristic feature is the repeated occurrence of promontories and peninsulas of white clay cliffs capped with coarse limestone, or shelly breccia, which all approach the table-topped form. The intermediate coast is low, sometimes with high white sandhills, or low sandhills with small bushes and tufts of grass, in many places a mere strip of very low sand, with extensive salt water swamps behind it. Owing to the excessive lowness of such parts of the coast, the stranger is very liable to underestimate his distance off shore, so as even to incur danger.

No vegetation is to be seen except here and there a clump of date trees, indicating the vicinity of a village or settlement. There are no perennial rivers, and near the sea, the streams, which are generally dry or nearly so, except after rain, become salt water creeks, which are only navigable by small boats.

The only islets lying off the coast, viz., Chúrnah, Astálúh, and a small one in Gwatar bay, are insignificant, and uninhabited, but are good landmarks.

Soundings.—The bank of soundings, after leaving the great bank extending off the Sind coast, is narrow, and ends abruptly, in some parts quite precipitously, at its outer edge, which is in general about 15 miles from the shore, but in some places only half that distance. The soundings are regular, the bottom being rock, sand and mud near the shore, and mud or clay beyond the 12-fathom line. The coast is unusually clear of dangers, and easy to navigate, the only dangers existing, viz., Webb bank, Báklang rock, Maidáni flat, and the two shoals westward of Jáshak, will

be found described in their place. In some parts the depth of water increases from 20 to 200 or 300 fathoms in about a ship's length.

WINDS AND WEATHER.—The Makrán coast has a climate intermediate between that of the Persian gulf and India, and which differs considerably in the western and eastern portions. Although beyond the limits proper of the monsoons of the Arabian sea, the effect of the S.W. monsoon in lowering the temperature is felt distinctly on the eastern part, while on the western part, cut off by Arabia from its influence, the heat in the summer months approaches that of the Persian gulf. It is usual to speak of *the south-west monsoon* on this coast, as the heavy monsoon swell rolls on to the coast, from June to September, and damp cloudy weather prevails, with an occasional blow from the westward, and rain in the eastern districts, which is less in amount, and occurs much later than further south.

Winds.—The south-west monsoon sets in at Karáchi with a few days', or even a fortnight's hard blow at S.W. to W.S.W. with cloudy weather, and scud flying overhead, generally between the 6th June and 10th July. It is announced by a falling barometer, and is accompanied or preceded by a heavy swell from the same quarter.

After the first blow it moderates, when strong to moderate or light breezes prevail until the end of August, or sometimes the middle of September, the wind veering at night several points to the westward. The swell continues, and varies from a high to a long low swell according to the weather. Soon after the middle of July there is a lull, clouds bank up with lightning in the East, and a hard squall from the land may be expected, shifting to westward and accompanied by torrents of rain. The weather from May to September is very hazy, so that the land is often not seen until very close.

At Gwádar the wind is less strong than at Karáchi, and the swell longer and more from the southward, the monsoon rain also does not often extend further west than Órmára. To westward of Gwádar the wind decreases, and at times is felt at Jáshak only as a light S.E. breeze, accompanied by a long ground swell, causing a surf on the shore.

Land and sea breezes prevail on the coast during the winter months; the land wind blows between N.N.E. and E.N.E. setting in at midnight or some hours later, and veering gradually to eastward, followed by a calm before noon, or by a light south-easterly air, which veers to S.W. in the afternoon. The land winds prevail from October to February, and are often fresh or strong in November, December, and January. After the latter month they are weak and uncertain, and in April they are sometimes felt as hot winds. The sea breezes are light from October to January, and increase in strength as the season advances, being strong in April and May;

they veer several points off the land at night, and are light or die away in the morning.

During December and January, strong north-easters are often experienced, accompanied by clouds of dust, and often by gloomy, squally weather, with rain about the end of the year. They last sometimes two to three days, in which case the wind generally lulls in the afternoon, freshening again at night.

The Shamál or north-wester of the Persian Gulf is experienced at all times of the year near Jáshak, and in the winter months is felt sometimes along the whole coast; more especially in either January or February, a very strong one often blows home to Karáchi, and along the coast southward as far as Bombay. There is generally only one such in the year, and it blows for two or three days, raising a heavy sea, and rendering the anchorage outside Karáchi unsafe. These breezes are accompanied by a thick haze, caused by fine dust carried by the wind, perhaps from the Mesopotamian plains.

In the winter month heavy squalls from N.W. to N.E. with rain, are experienced on the western part of the coast. Heavy squalls from westward occurred on 4th and 7th May 1864, but they appear unusual.

CYCLONES.—The cyclones of the Arabian sea do not reach the Makrán coast, their effect is, however, felt in a heavy southerly swell with falling barometer, cloudy, unsettled weather, and, after the storm has passed, a strong breeze or moderate gale at S.W. The effect of bad weather to the southward is always felt in a similar manner, although it does not reach the coast.

On the 16th September 1872 a severe storm of wind and rain felt previously all up the Malabar coast from Ceylon, was experienced as an easterly gale with rain, along the whole coast as far as Chahbár.

Weather.—The weather, which, as a whole, may be considered singularly fine and safe for navigation, may be summarized as follows:—

January.—Strong north-easters or land-winds; also squally, N.E. to S.E. with rain at some time in this month; sea breezes, if any, light. Sometimes a strong shamál; atmosphere dry; winds cold and cutting; clouds of dust accompany, and sometimes precede the strong winds; weather fine, but sometimes gloomy and overcast.

February.—Land breezes, moderate, with light sea breezes, or moderate northwester; in the course of the month generally one strong shamál or gulf north-wester. Sometimes squally with rain from eastward, shifting to west, at Jáshak, otherwise fine dry weather.

March.—Land winds failing; weather generally fine, but getting damp; sea breezes, light to moderate, S.W. veering to W.N.W., or N.W. at night: also strong, or a northwester, with much dust. Occasionally calms, chiefly in forenoon; weather settled and fine.

April.—Weather very fine but hazy ; air very damp ; sea breezes N.W. to S.W., occasionally fresh, and, towards the end of the month, strong. Sea smooth, weather much warmer, sometimes hot winds off the land.

May.—Calms in morning, with strong sea breezes ; weather hot, and very damp and hazy, with clouds passing rapidly from westward. Generally fine, and water smooth, except the swell due to the sea breezes. Heavy squalls at W.N.W. with rain have occurred. In 1871, strong breezes to moderate gale at S.W. blew during most part of month, with heavy monsoon swell, following a cyclone on 4th to 6th in latitude 14° N. Near Jáshak light breezes S.E. to S.W. are experienced with an occasional shamál.

June.—Weather similar to that of May continues, with probably a few days of light airs or hot scorching winds from the land, rendering the heat very oppressive, until about the middle or latter part of the month, when the monsoon, preceded by a falling barometer and threatening weather, usually sets in on the eastern part of the coast, as a strong W.S.W. breeze or moderate gale, which may last from a few days to a fortnight, and is preceded or accompanied by a heavy swell, out of proportion to the amount of wind. The weather then becomes cooler, the clouds and scud from westward, and the dampness continue. On the western part, light S.E. and South winds prevail, varied by strong breezes from westward, with dust, and high thermometer.

July.—The first burst of the S.W. monsoon is often followed by less boisterous weather ; if the monsoon should not set in until this month it will be preceded by very hot unpleasant weather. Soon after the middle of the month there is an interval of light winds, after which the rain of this season occurs, generally beginning between the 15th July and 10th August with a squall and thunder and lightning from N.E. followed by a blow from westward. Lightning seen of an evening to the N.E. at this season is a pretty sure forerunner of the rain. The duration of the rain is very uncertain, sometimes there is little or none, or it may last only a day, but in 1869 it lasted at intervals from the 19th July to the middle of September. Heavy rain has not been observed west of Órmára, but a little sometimes falls as far west as Gwádar.

On the western part of the coast the heat is excessive in this month, and continues so until the end of September ; the winds are generally light at South to S.E. with an occasional fresh hot wind from W.N.W. The temperature at Karáchi is always much lower after the rain.

August.—Weather much cooler ; air clearer and less damp after the rain has fallen ; monsoon breeze and swell moderate or light, and wind veers more to westward at night. Sometimes the heavy weather and rain occurs in this month. Native craft put to sea again early in August. On west part of coast, the weather is the same as last month.

September.—The monsoon is generally over in the beginning of this month, breezes light and swell decreasing, but sometimes strong W.S.W. winds and heavy swell continue up to the middle or latter part of the month. Light airs and calms prevail a great part of the month. On the western part of coast, the weather continues very hot, with light variable winds, and now and then a fresh shamál. In 1872, a gale was experienced from East with rain, lasting a few hours, but this was exceptional.

October.—A fine, clear, dry month; light sea breezes and calms; land wind generally very light, but occasionally fresh for a few hours. Sea smooth.

November.—Same weather as last; sometimes squally from eastward about the middle, with unsettled weather, and ground swell, probably due to bad weather away to the southward.

December.—Fine month with moderate land and sea breezes. Land breezes often strong, especially towards the end of the month, when often a moderate gale from N.E. to S.E. with rain occurs; moderate north-westerners on west part of coast at times during the month. Weather clear, unless land obscured by dust raised by the strong winds. Often very clear after rain, and weather very cold; sea generally quite smooth the last two months. The bad weather of the gulf sometimes reaches Jáchak or still farther east in this month and January.

The Rainfall is uncertain; it is generally small, and sometimes hardly any falls for two or three years, but every now and then a large rainfall is gauged during the year; generally speaking, what rain falls does so in such heavy downpours* as often to be hardly less destructive to cultivation than the long droughts. At Karáchi and as far as Órmára, rain falls generally in July or August, sometimes also in September, but little or none falls at this season on the western part. Rain also falls in the winter months along the whole coast, generally in December or January, and sometimes in February, or, more rarely, March. This winter rainfall is more abundant on the western part of the Makrán coast than near Karáchi. The average at Karáchi, which is probably greater than on the coast, is only 6 to 8 inches. In 1869, however, 28 inches were gauged at Karáchi.

Dews are heavy from March till September, and occasionally also during the cold months. Sometimes they are so heavy that the water drips from a ship's rigging like rain.

Fogs are sometimes experienced near the shore, and are most frequent in the winter months; they occur in the morning with a land wind, and are dense and wet, but they always clear off before noon.

* After these heavy rains the rivers, or rather watercourses, of Makrán discharge an immense volume of water. The army of Alexander the Great, having encamped in the dry bed of one of these rivers, suffered great loss, and narrowly escaped destruction from this cause.

The Temperature varies along the Makrán coast, being much hotter in summer at the west end than near Karáchi; in the winter it is more uniform. The eastern part is cooled by the strong westerly breezes in May, and a marked decline in the temperature is perceptible after the rain has fallen. At Jáshak the effect of the monsoon, felt there as a light S.Ely. or Sly. breeze, is chiefly to prevent the thermometer attaining the excessive height it does in the gulf summer, although it does not amount to an actual fall.

The dampness of the climate between March and September is a marked feature, the difference between the dry and wet bulbs being very small, often nil. The following table gives the range of the thermometer (Fahrenheit's), on board ship, from observations not continuous or confined to the same place, but extending over nine years. The range on shore would of course be greater, and for Jáshak 3° to 5° may be added for the five months, June to October :—

Month.	Average.			Registered.		Month.	Average.			Registered.	
	Max.	Min.	Mean.	Max.	Min.		Max.	Min.	Mean.	Max.	Min.
January -	73	65	69	78	56	July -	85	82	$83\frac{1}{2}$	88	77
February -	74	67	$70\frac{1}{2}$	78	64	August -	83	80	$81\frac{1}{2}$	87	77
March -	78	73	$75\frac{1}{2}$	84	68	September -	83	78	$80\frac{1}{2}$	86	75
April -	83	77	80	87	73	October -	83	77	80	86	73
May -	86	82	84	93	73	November -	81	74	$77\frac{1}{2}$	86	71
June -	88	84	86	92	78	December -	74	70	72	80	65

The Barometer is generally a safe guide for the weather, its range, although small, is greater than in the tropics, and it falls before bad weather. The gulf shamál or northwester, and occasional squalls, often occur without barometric warning. The diurnal maximum, near 10 a.m., is about $\frac{1}{10}$ th of an inch higher than the minimum at 4 p.m., the second maximum at 10 p.m. is less marked. The table below, compiled from observations extending over nine years, gives the average height and greatest monthly range for each month. It shews a great permanent depression during the summer months, which attains its lowest point in June; the highest reading, in December, being fully half an inch higher than in June and July. The greatest annual fluctuation observed is as follows :—

Maximum in December	-	-	30.40
Minimum in June	-	-	29.52

or 0.88 of an inch.

In recording the barometer, the time of year therefore becomes an important consideration.

Month.	Average.		Greatest observed Range.	Month.	Average.		Greatest observed Range.		
	Max.	Min.			Max.	Min.			
January	-	inches. 30·28	inches. 30·06	inch. 0·44	July	-	inches. 29·81	inches. 29·61	inch. 0·34
February	-	·23	·06	0·36	August	-	·85	·67	0·36
March	-	·17	·00	0·32	September	-	·97	·79	0·43
April	-	·10	29·92	0·42	October	-	30·14	·98	0·37
May	-	·01	·90	0·28	November	-	·23	30·07	0·35
June	-	29·81	·61	0·38	December	-	·30	·15	0·33

SWELL.—From June to September a heavy swell, caused by the S.W. monsoon then blowing in the Arabian sea, rolls in on the Makrán coast. The set of the swell, which is from W.S.W. or S.W. at Karáchi, assumes a more southerly and south-easterly direction on the western part of the coast, being from S.S.W. at Gwádar, about south at Chahbár, and S.E. at Jáshak. The strength of the swell decreases gradually from Gwádar to Jáshak, where it is felt only as a low ground swell. The swell varies much during this time, and during a break in the monsoon is often light, and sometimes quite disappears early in September; at other times it continues heavy most part of that month, but quite ceases by the end of it; it is much heavier than is due to the amount of wind on the coast. On the occurrence of a cyclone or storm in the Arabian sea a heavy swell rolls up from southward, or a heavy ground swell and surf is observed. During a heavy shamál, or northwester, a high sea runs, which is felt even beyond Bombay.

CURRENTS.—The currents are dependent on the prevailing wind, and are uncertain as to direction and duration, except during the S.W. monsoon. They are at all times strongest off the eastern part, and more particularly on the coast between Rás-Jiyúni and Astálúh island. In the S.W. monsoon a current sets close round Rás-al-Hadd and Maskat along the south coast of the gulf of 'Omán, curving round near Jáshak, and setting along the Makrán coast to the eastward, between Chúrnah island and Rás-Muwári to the southward, and past Karáchi to south-eastward, along the coast of Sind. It is variable in strength, but does not (probably) exceed $1\frac{1}{2}$ knots per hour, and runs stronger during flood tide. It is sometimes very weak, and at times just before, or even during the S.W. monsoon, when the wind hangs to the southward, the current runs to the westward, at least as far as Órmára. During the fine season there is generally little or no current, but off the central part of the coast defined above, a set either way of 20 to 30 miles a day is not unusual.

TIDES.—Excellent tide tables are published annually by the Indian government for the port of Karáchi. No ship proceeding to Karáchi should be without these tables, especially if she have to make the place in

the S.W. monsoon. They are doubtless applicable for the whole coast, allowing the following corrections for time :—

Places between Jáshak and Gwádar deduct about 60 minutes.

„ near Órmára	„	„	45	„
Sunmiyáni bay	„	„	15	„

The rise and fall is nearly the same as at Karáchi; near Jáshak it may be a foot greater.

The stream of tide is hardly, if at all, perceptible between Gwatar and Jáshak, at which latter place the flood sets to westward into the Persian gulf; at Gwádar it sets to eastward along the coast, following its direction, to Karáchi, and the river Indus. It is only felt near the shore. The ebb sets the reverse way, and in the S.W. monsoon is sometimes strong near shore, at other times only felt as a slackening of the prevailing westerly set.

THE VARIATION of the compass is small, and is now easterly (1874), and increasing yearly about 5'. It varies from almost zero at Jáshak to 1° 20' at Karáchi.

PILOTS are only required at Karáchi, see description. If a fisherman be taken on board, and can be understood, he would be of use, locally, to a stranger visiting any of the bays, &c.

DISTRESS.—A lifeboat is stationed at Karáchi. If a ship in distress were to communicate by boat or signal with one of the telegraph stations prompt assistance would be sent from Karáchi. At Pasní or Sunmiyáni also a telegraph inspector could be communicated with. A ship, if wrecked, would doubtless meet with civility and assistance if any inhabitants were encountered. In case of necessity it is probable a ship would ride at anchor safely at any season.

COMMUNICATIONS and TELEGRAPH.—The mail steam vessels between Karáchi and the Persian gulf call every week at Gwádar, going and returning. Other communication is by native boat, or messengers by land (dawk), or occasionally by the telegraph steam vessel when she visits the coast.

There is a land line of telegraph as well as a submarine cable along the whole coast, and messages for any part of the world are received at the stations, viz., Órmára, Gwádar, Chahbár, and Jáshak. A blue light would be answered, and a light shown at any of the telegraph stations if the ship were expected, or if her signals were observed at Jáshak or Gwádar, which offices are open all night. Vessels should either moor to or anchor near the mooring buoys laid down both at Gwádar and Jáshak, to avoid damage and delay by hooking the telegraph cable. Any ship unfortunately hooking up the cable is particularly requested to give the earliest information possible with all details to the telegraph officers.

TRADE and PRODUCTIONS.—The trade is at present insignificant, and wholly conducted in native vessels. Before the civil war an occasional

American whaler visited the coast in quest of the whales which are numerous in these waters. The native boats are called Dengí, Machwa, and Batíl; the largest are about 80 tons burden, and trade to the Persian Gulf, Maskat, Karáchi, Bombay, and a few only to the Malabar coast. They are all latteen rigged.

The exports are a small quantity of dates of fine quality, wool, ghee, salt fish, and shark fins, the latter for the Chinese market; also a large quantity of Pish,* a kind of leaf used for making matting, and a little cotton. The sea near the coast abounds with fish of excellent quality, which forms the chief part of the food of the maritime inhabitants, and is largely salted for export. Camels are bred in large numbers, also sheep and goats, but are not exported. Trade with the interior is very limited on account of the insecurity of the roads; it is carried on by caravans of camels, which come to Gwádar, Sunmiyáni, and a few to Pasní and Órmára. The imports by sea are, English piece goods, rice, timber, &c., and the trade is almost entirely in the hands of the Banyans, settled at the various towns, as well on the coast as in the interior.

The trade of the districts west of Gwádar is trifling, and is carried on by Maskat boats, which visit the coast for salt fish, pish, ghee, and a little wool. The trade of Gwádar is more extensive, and has much increased since the additional security afforded by the English telegraph office; it is the principal seaport and centre of trade; the only other trading ports, are Pasní, Órmára, and Sunmiyáni, which are quite insignificant. The latter place has much declined of late years, owing to the rise of Karáchi, to which port its trade is practically transferred.

* Colonel Ross says, "A remarkable growth, and one peculiar to Makrán, is the "dwarf palm, called 'Peesh' by Balúchís, and 'Gudhaf' by Arabs, a bush with fan-like leaves, which grows luxuriantly amongst the hills. This plant is dear to the Makráni, who turns its leaves to a variety of uses. From it they manufacture houses (i.e. huts), mats, bags, ropes, shoes, pipes, drinking cups, &c. From its pith they obtain tinder, and between its topmost leaves is found a palatable stalk. The berries provide the devout with rosaries, and the hungry with food."

CHAPTER II.

GENERAL REMARKS ON PASSAGES AND THE NAVIGATION OF THE COAST.

The navigation of the coast, except near Karáchi, is at present confined to native craft and to steam vessels, which latter have no difficulty in getting up direct from Bombay or along the coast during the south-west monsoon, and do not require any special directions on passages. The following are chiefly for sailing vessels.*

N.E. MONSOON.—Passages from Bombay to the Makrán coast are easy during these months, but are often tedious in October from calms, and in March and April from head winds. During the height of the N.E. monsoon, a vessel from south of the equator would do best to come round by the Malabar coast as if bound to Bombay; she would get a fair wind from the Katiwár coast, and would only have to avoid the Indus banks. *See directions for Karáchi.*

The supposed in-draught into the gulf of Kach is probably due to the fact that if the flood tide be running at the time a vessel is crossing the mouth and near the entrance, she will be set inside her course, owing to the tide acting on the bow. Fortunately the soundings are a good guide. In May, the passage along the coast would probably be very tedious, owing to calms, or strong westerly breezes with a slight lee set.

During the fine season, or from September to April inclusive, a vessel may stand or work along the coast with the land and sea breezes, or anchor in one of the bays if a strong contrary wind be experienced. The wind for the passage along the coast towards India is generally fair throughout the year, except during December and January, when a vessel would be probably delayed by the northeasters, until off Karáchi, whence they are a fair wind.

S.W. MONSOON.—In the south-west monsoon, as soon as clear of the land, a sailing vessel leaving the coast can always fetch Bombay or get out to sea to the southward, and a well found vessel ought always to be able to work up from Bombay to Karáchi during the monsoon, or from Karáchi to the gulf, although she would have a heavy swell and lee set. A good offing should be made off Bombay at this season before standing to the northward. After passing Diu Head the weather may be expected to be

* *See Admiralty Chart, No. 38, Maskat to Karáchi.*

more moderate, and the course is more northerly ; the Katiwar coast should not be approached under the depth of 30 fathoms. In case of necessity it is always practicable to bear up for Bombay. As the S.W. monsoon appears to be more violent at Bombay after full and change, it may be better to start after the quartering of the moon, if circumstances will admit of waiting.

If attempting to work along the coast of Makrán, in this monsoon, it is recommended to work between 21° and 24° N. latitude, and take every advantage of the wind veering to westward at night. Nearer the coast, the wind is often light with a heavy swell, and the lee current is probably stronger. A vessel should not stand into Sunmiyáni bay ; if compelled to do so, she might anchor under the lee of Churnah island, which, however, is too small to give complete shelter.

There is no reason why a vessel should not visit Órmára and Gwádar, or any places west of it during the S.W. monsoon, but there is much ground swell in all the anchorages on the coast. The haziness of the weather and lee current render care and attention to the navigation when approaching the coast in this season very necessary.

Native vessels do not go to sea from the end of May to the beginning of August, after which date they consider the bad weather over.

If bound to the southward from the Makrán coast, in April, May, October, November, or early in June, with gloomy weather, falling barometer, and southerly swell, it is well to bear in mind that probably a cyclone is blowing to the southward, and to take due precautions as to approach to it. The course these storms travel, varies from about N.N.W. to W.N.W. : they are rare, and often years elapse without one occurring. Cyclones in the northern part of the Arabian sea are recorded in the months of April in 1845 and 1847 ; May 1843, 1851, 1871 ; June 1836, (doubtful) ; October 1842, 1871, and November 1851, 1854.

Off Dwarka bad weather is sometimes experienced from S.W. to S.E. and N.E. in December to February during the N.E. monsoon, not lasting more than a day.

Karáchi to the Westward with a fair wind.—On clearing the break-water off Manora point, the course is West for 18 miles, when cape Monze will bear North, distant about 2 miles, remembering not to bring Manora lighthouse to bear to southward of East while in sight. A course W. $\frac{1}{4}$ N. for 237 miles then leads direct into Gwádar east bay, passing about 2 miles outside Webb bank. Churnah island is visible more than 30 miles in clear weather, and is lost sight of rather sooner than the high land over cape Monze. The Malán cliff will be seen before it is quite out of sight, Jabal-Hingláj, and the high land near it, having been then in sight some time. Órmára head cannot be mistaken, a high promontory making like an island, which may be safely approached if working along the coast.

Astálúh island, a little table land, will be next seen, and Webb bank must be avoided in the S.W. monsoon, and at all times in a heavy draught vessel. After passing the island, the curious little barn-shaped hill Jabal-Zarrain will be seen. When off Rás-Shamál-bandar, which is the east end of a long range of white cliffs, the Darám and Mahdí hills will be seen, and on a nearer approach Gwádar head makes like an island. The tree on Rás-Núh is not seen on this bearing if shut in against the higher town bluff. In the night, by keeping in 12 to 15 fathoms after passing Webb bank, Gwádar head could not be passed without being seen.

If the vessel does not call at Gwádar, a course West, a little northerly, may be shaped for Rás-Jiyúni, passing 7 to 8 miles outside Webb bank and Rás-Núh.

On leaving Gwádar, and being clear of the spit south of Rás-Núh, the course is W. $\frac{3}{4}$ S. for 38 miles to a position 2 miles south of Rás-Jiyúni. Rás-Garnán, the low point to eastward of Rás-Jiyúni, is the most southern part of the coast, and should have a berth of a mile, on account of the overfalls off it: the water will here shoal to 9 fathoms on the Gwatar flat. The hills between Píshkán and this point are of a remarkable and fantastic shape.

From Rás-Jiyúni a course of W. $\frac{1}{2}$ N. for 150 miles will lead to a position abreast of Rás-Maidáni and a mile clear of the shoal flat off it. Crossing Gwatar bay, this course leads 2 miles outside Rás-Fastá distant 17 miles, and known by the castle hill, the islet not being conspicuous until bearing about N.E.; at 15 miles further west is Rás-Barís, the west bluff of a long table land with very remarkable hills behind. Kháki-kúh cannot be mistaken, and will be seen over Rás-Barís. Chahbár will be passed at a distance of 9 miles, it is 30 miles beyond Barís, only the rounded hill of darker colour over the place will be seen, and before reaching this a darkish rounded hill called Pádkúh will have been passed.

The peninsula on the west side of Chahbár bay, of low irregular cliffs, and Gúrdím, a table-topped peninsula, are next passed, and between these, and 21 miles from Chahbár, lies Báklang rock, which is $2\frac{1}{2}$ miles from Gúrdím point, and must be avoided; a W. $\frac{3}{4}$ N. course will lead 7 miles outside the rock, but the special directions should be consulted. At 19 miles beyond the rock, Rás-Tank will be passed 7 miles off, and will hardly be visible; the little dark hills to eastward of it are conspicuous, and may be mistaken for it. Before reaching Gúrdím the remarkable range of Kúh-Kalát comes in sight, and is conspicuous until past Maidáni. The low cliff of Maidáni, it must be remembered, only occupies the eastern part of the point, and the flat off the west side must not be approached too nearly (*see Directions*, page 55).

Before reaching Maidáni, the great peak of Sháhú will have been sighted; it continues conspicuous until off Jáshak, where it is shut in

behind the nearer hills. From Tank the distance is 48 miles to a position off the western point of Maidáni, and from this a course W. by N. 52 miles would place a ship abreast of the very low point Rás-Jagín, and 2 miles off it. Continuing the same course a distance of 19 miles brings her opposite Jáshak point, distant over 3 miles. Jáshak point is known by the large telegraph buildings near the low point. If bound to Jáshak, the course would be altered after passing Jagín.

The course W. by N. leads also 2 miles clear of Mason shoal, which a vessel drawing more than 15 feet must avoid, and 3 miles outside the Gah-hah; after passing the latter she may haul up and pass Rás-al-Kúh, a very low point, within a mile by day, but it is not easily made out at night.

After passing Jagín, Kúh-Úshadán, and the hills off Jáshak will be easily recognizable; Rás-Jagín itself is not visible by day more than 3 or 4 miles. Kúh-i-Mubarak will not be sighted until past cape Jáshak.

CHAPTER III.

KARÁCHI TO CHÚRNAH ISLAND.

 VARIATION IN 1874, 1° 20' East.

ASPECT of COAST.—The Lakki hills, which end at cape Monze, are a sharp ridge of even outline, 740 feet high, with three remarkable hummocks along the summit; they extend in a north-easterly direction, decreasing in height, and recede from the coast, which is then low as far as Manora point. When near Karáchi, part of the Pubb mountains are seen over these hills. Manora point forms as a low hill sloping to northward, and ending in a cliff to seaward, 90 feet high; there are several houses on it, also a small church and the old fort,* on which latter are the lighthouse and signal flagstaff. The masts of the shipping in the harbour may be seen to the left of Manora hill over the low sandy shore and, if the weather be clear, the church tower of Karáchi, a high, square tower, or other high buildings in the town, are seen on either side of the lighthouse.

The Oyster rocks are a remarkable row of craggy islets, of nearly the same height as Manora point, and to the right of them are seen Clifton and Gizri bluffs, also of the same height, which have houses on them and are level in outline. Between Gizri bluff and the mouths of the Indus the shore is low, and is seldom seen from a ship.

SOUNDINGS.—The bank of soundings extends off shore to about long. 66°, and at 35 to 40 miles S.W. of Karáchi there are found 30 to 35 fathoms, coral and sand, with deeper water and soft bottom inside, which may serve as a direction bank. The 30 and 20-fathom lines are nearly parallel to the shore, and the 10-fathom line is about 4 miles off shore near Manora, but quite close to the shoal water west of that place, and to cape Monze. The bottom is everywhere soft, except under 20 fathoms, to south-westward of the cape, and under 10 fathoms to eastward of it.

RÁS MUWÁRI or CAPE MONZE.—Rás Muwári, now generally known to Europeans as cape Monze, is a sloping bluff headland, forming the seaward termination of the Lakki hills. There is a peak 460 feet high at three quarters of a mile to eastward of the cape, and to the northward a detached ridge of hills extends along the shore to the entrance of the Habb river; inshore of these hills is the plain or valley of the river. The cape

* The little fort on Manora point was built by the Talpúr chiefs in 1797, and taken by the English in 1839, after being cannonaded and breached by H.M.S. *Wellesley*.

may be approached to one third of a mile on the west side, but a small spit with 2 or 3 fathoms runs out half a mile to the south and south-west, close outside which there are 6 and 12 fathoms; to the south-eastward of the cape there are 14 fathoms about a cable from the rocks.

For 4 miles east of cape Monze the hills lie close to the sea, with deep water close in, after which the shore is low and rocky for 5 miles, and then forms a bay. On the east side of this bay a line of very low sandy shore commences, with a backwater inside, which extends all the way to Manora point. Near the cape two or three little boat harbours are formed in the shore rocks, from which stone is shipped to Karáchi.

Caution.—Foul ground is found in the bay between Manora and the cape at between 4 and 10 miles distance from the former place, and projecting 3 miles from the land; it has 2 and 3 fathoms on its outer edge, with 6 close to, and 10 fathoms within a mile. It all lies inshore of the straight line or chord drawn between the above points, and as the lighthouse bears E. b. S. from its outer edge, it should be kept on a bearing to northward of East.*

KARÁCHI HARBOUR is formed on the west by the breakwater, Manora hill, the low sandy isthmus connecting it with the main and by Baba island; and on the east by Kiamári island and the groyne or pier extending from it $1\frac{1}{2}$ miles to S.S.E.; its width varies from $3\frac{1}{2}$ to 5 cables, and its present extent is 121 acres with a depth of 20 feet and upwards at low water, or sufficient room for 55 ships (if provided with head and stern moorings), besides 580 acres of shoaler ground, occupied by native vessels. Its length is somewhat over 2 miles from the bar to Kiamári, opposite which place it splits up into five creeks, four of which lose themselves in a large backwater which occupies a space of 18 square miles, and extends 8 miles along inside the coastline to north-westward of Manora. The creeks are only frequented by fishermen and boats to cut wood.†

The remaining creek, formerly called the Town creek, is the new channel for native craft, and runs beyond Kiamári for $1\frac{1}{2}$ miles to the large wharf known as the Native jetty, at which most of the produce is landed and shipped. This channel, 150 yards wide, now receives through an opening in the Napier mole, 1,200 feet in length, and spanned by a fine pile bridge, the water which formerly escaped by the Chinna creek; the channel is rapidly increasing in depth, and even now admits of the largest native craft passing up to the jetty.

Harbour channels and buoys.—Owing to the recent completion of the works, the bed of the harbour is in a state of transition, all the changes,

* Two ships, the *Stamboul* in 1859 and the *Marina* in 1861, were wrecked in this bay, it is stated from want of care, and attention to the bearing of the lighthouse.

† See Admiralty Chart of Karáchi harbour, No. 40; scale, $m = 8$ in.

however, being in a favourable direction. The entrance channel is close round the breakwater head and passes 400 yards from Manora cliffs, being marked on its west side by buoys; the channel is here shoalest and narrowest—at present under 500 feet—the old bar forming its east side. The end of the breakwater is nearly submerged at high water; temporary beacons placed on it have been washed away during the last two monsoons, but it is intended to erect a permanent one. After passing the north end of Manora hill a black buoy marks the outer edge of the shoal, on the former site of Deep-Water point, which projects $1\frac{1}{2}$ cables from the western shore.*

Beyond the Manora harbour works jetty, known by the sheer legs, there is a black buoy on the tail of a flat occupying the centre of the harbour, known as the Middle ground, and another on the edge of a shoal projecting from the groyne, between which is the channel to Kiamári anchorage. The largest ships do not pass up this channel but remain in the Manora anchorage, which extends from the middle ground to abreast of the end of the groyne. Kiamári anchorage is narrow, and close to the shore; it does not extend beyond the island. The channel west of the Middle ground is only used as anchorage for small vessels, and does not extend as far up as Kiamári. There are many mooring buoys in the harbour, they are painted red.

Soundings.—The depth of water is as follows for low-water springs: off the end of the breakwater 28 feet, in the shoalest part of channel abreast of the point 19 feet, thence deepening to 21 to 54 feet in Manora anchorage, 17 feet in the channel leading to Kiamári anchorage, and 20 to 24 feet off Kiamári; over the middle ground there are 8 to 10 feet, and in the west channel 24, decreasing to 17 and 12. The depth on the old bar to eastward of the present entrance channel is about 11 feet; the old, so-called east, channel is totally disused. Outside the harbour the 5-fathom line of soundings runs to S.E. and to W.N.W. from the breakwater head, inside which the water shoals regularly up to Gizri beach. The bay to eastward of the groyne and around the Oyster rocks is quite shallow. Outside the 5-fathom line the soundings are regular with muddy bottom, or sand and mud mixed; and inside that depth and on the bar the bottom is generally sand. In the harbour the bottom is mud in the channels, and sand on the banks, except Deep-Water point shoal, and some of the deep water near, where rocky bottom is found. At a mile to N.W. of Manora lighthouse on the seaface is a rocky spit projecting about 2 cables from the line of beach.

Tide stream.—The ebb sets fair down the harbour and out to sea, and the flood sets strongly across the end of the breakwater and round into the harbour; on the bar it still sets somewhat to eastward across the channel,

* Vessels' bottoms, especially those of iron, foul very rapidly in Karáchi harbour, and the toredó worm is very destructive to wood which is exposed to salt water.

but after passing it sets fair up the harbour. The strength of the stream at springs varies from $1\frac{1}{2}$ to 2 knots, and off Deep-Water point is as much as $2\frac{1}{2}$ knots. In the outer anchorage the flood sets to eastward and ebb to westward not more than one knot per hour. At neaps the tidal current is very weak.

Shores of the harbour.—From the base of Manora hill northward, a low sandy plain extends for half a mile, on which stand a number of buildings, coal and pilot depôts, harbour works, telegraph cable tanks, &c., beyond which distance it divides into two sandy strips of shore, with mangrove swamps between them. The western strip extends nearly straight to north-westward, and forms the west sea beach, and is the isthmus connecting Manora with the main; it is sandy, from 10 to 20 feet above the sea, and covered with coarse grass; while the eastern one forms the west shore of the harbour, and ends opposite Kiamári at the entrance of a large creek.

Baba, a sandy islet on the opposite side of this creek, is the site of a fishing village and coal stores.

To the northward of Baba island is a great extent of banks and swamps all flooded at high water and intersected by large creeks, the largest of which trends round the north side of Baba island, and runs for many miles to W.N.W. The mainland is low and distant $2\frac{1}{2}$ miles from Baba, and runs nearly east and west as far as the Liyári river, which is a watercourse, with water only after rain, close to the northward of Karáchi town.

Kiamári island is low and sandy, with sandhills, running east and west for nearly 2 miles; it is now connected with the main near Clifton, by the Chinna creek stoppage at its east end, and with the native town quarter of Karáchi by a wide mole,* $1\frac{1}{2}$ miles in length, reaching from the native town of Karáchi to the north-west end of Kiamári. The groyne commences at the south-west corner of the island, and a branch of the Sind railway runs along its seaface, crossing the Chinna creek stoppage and joining the main line $1\frac{1}{2}$ miles from the Karáchi terminus. At the west end of the island are commissariat stores, a few houses, a post office, and a private building-yard; there are three timber jetties, and passengers are generally landed here, also goods direct for up country. The rest of this island is not made use of on account of the drift sand.

Eastward of Chinna creek, a sandy beach extends for 4 or 5 miles to S.E. to the entrance of Gizri creek, and a little in shore are low table hills with bluff extremes, and with buildings on them, which are called Clifton and Gizri.

* This was commenced by Sir Charles Napier, and is called after him the Napier mole; it was finished in 1853, and near the bridge stands a small obelisk in memory of the great general.

Oyster rocks or islands, called by the natives *Andai*, standing in the shallow bay between Clifton and Manora are only visited by the curious, their general appearance has been already described.

The Napier mole, near its north end, is cut through by the bridge already mentioned, and close to northward of it is the Native jetty, a fine broad quay 1,400 feet long, the south side of which has the deeper water, along which the largest native craft now lie; less than a quarter of a mile from this jetty is the custom house; then follows the native town on the left of the road, and on the right is the road to the business quarter, banks, railway, and to cantonments, locally called Camp.

KARÁCHI,* the capital and seaport of the province of Sind, lies 4 to 5 miles to N.E. of Manora point, and on the opposite side of the harbour. The old native town, which is the part nearest to the harbour, is crowded and closely built, while the new city is well laid out, but somewhat straggling; altogether it occupies about 5 square miles of ground and had, in 1871, 47,000 inhabitants. It contains many fine buildings, some of which are conspicuous from sea, as the Frere hall, the English church, and Scotch kirk. It is a large military station, and has railway communication with the Indus, now being extended to the Panjab, a bi-weekly mail-steamer line to Bombay, and a weekly one to Maskat and the Persian gulf, also a four-weekly line to Aden and England. The telegraph office is in communication with all parts of the world. All necessary supplies and water are easily obtainable. There is a published scale of port dues, &c., which are similar to those of Bombay.

Coal, which is imported from England, could probably be purchased either from the Government depôt or the steamer agents at from 2*l.* 15*s.* 0*d.* to 3*l.* per ton. There are no docks, but a ship can be beached safely, and general repairs to hull or engines can be executed. There are several cranes on the jetties; the sheers on the railway jetty will lift about 20 tons.

Extensive harbour works have been carried out for the improvement of the port at a cost of 450,000*l.*, consisting of a breakwater 1,500 feet in length, running in a S. b. E. direction from Manora point, and nearly

* The province of Sind extends 360 miles north and south, along the river Indus, by 170, and comprises an area of 57,000 square miles. In 1871 its population was nearly two millions, and it contained 4,072 towns and villages. Its foreign trade in the same year, almost exclusively carried on through Karáchi, amounted to, exports, 2,024,000*l.*; and imports, 1,830,000*l.*; while the revenue raised in the province amounted to 812,000*l.* On its annexation in 1843 the trade amounted only to 120,000*l.* The *Duke of Argyle*, of 800 tons, the first ship direct from London, reached Karáchi in October 1852, while in 1871, 135 ships and steamers, and 1,256 native vessels, of an aggregate tonnage of 135,116, visited the port. These figures sufficiently indicate the progress of the place, and a large increase may be expected since the successful completion of the harbour works, and extension of the railway.

The substance of this Notice is to be inserted in red ink on the Charts affected by it, and introduced into the margin, or otherwise in the page of the Sailing

HINDOSTAN—WEST COAST—KARÁCHI.

(C.) *Intended alteration in Manora point light-house.*

The Harbor Authorities at Karáchi have notified the following intended alteration to be made in the light-house at Manora point.

As early as practicable after the 1st of July, 1877, the present light will be replaced by a *revolving* dioptric white light of the first order, elevated 150 feet above the sea-level, and in clear weather should be seen from a distance of 20 miles. N. 11.22/77

The light-tower, 52 feet high, adjoining the southwest bastion of Manora fort, will be round and built of white stone.

Position: Latitude $24^{\circ} 47' 51''$ N., longitude $66^{\circ} 58' 15''$ E.

Further particulars and notice will be given of the date of the exhibition of the light.

(Marine Survey Department, Calcutta, March 20, 1877, Notice to Mariners, No. 1)

INDUS RIVER.

Indus banks.—The bank off Kukiwári mouth has somewhat dimin-

~~ished since 1867. It is probable that~~
SINDH COAST—KURRACHEE, (KARACHI.)

(C.) *Alteration in Manora point light.* (N. M. 63-77.)

With reference to Notice to Mariners, No. 22 of 1877, on the intended alteration in Manora point light:

The Harbor Authorities at Kurrachee (Karáchi) have further notified that, on the 15th August, 1877, the old light was discontinued and the new *revolving* light exhibited, which attains its greatest brilliancy every two minutes, and is visible from a distance of 20 miles in every direction seaward.

Position: Latitude $24^{\circ} 47' 21''$ N., longitude $66^{\circ} 58' 15''$ E.

(Government of India Notice to Mariners, No. 15, Calcutta, August 8, 1877.)

the great bend of the Hajámri below Keti now near

581.—**Jiddah.**—Erg-el-Allem reef has 9 feet least water, the shoalest part—a pinnacle—being near the northeast end. The reef is said to be growing and extending in a northerly direction.

Buoys.—The only buoy in the harbor in position (March, 1880) was the red buoy off the south end of Burri reef. The others have either been washed away or removed. The tanks marking the boat passage from the inner anchorage to the town have been washed away.

The beacons in this harbor are easily distinguishable three miles distant; to a stranger they appear like boats under sail. (H. N. 54-'80.)

submerged at high water, and a groyne over 9,000 feet long, parallel to Manora point, which now forms the east side of the harbour, besides the stoppage of Chinna creek, through which a large portion of tidal water was lost, a large screw pile bridge, extensive quays, and channel up to them, and farther assisting by dredging the formation of a new channel across the bar. A large and increasing trade is carried on with Bombay, England, the Mediterranean, and China, also some trade with Calcutta, the Persian Gulf, Mauritius, Malabar coast, and the Makrán coast. The principal exports are cotton, wool, oil-seeds, wheat, hides, drugs, silk, &c., also horses from the interior; and the imports, piece goods and cotton twist, metals, sugar, spices, silk, tea, liquors, grain, dried fruits, and salt fish, the latter chiefly for export to China; also much plant for railway and river steamer companies. The fisheries are extensive, and fish excellent.

LIGHT.—The lighthouse on the south-west angle of Manora fort shews a fixed white light, 120 feet above the sea, its limit of visibility is 16 miles, and in the S.W. monsoon often not more than 6 or 7. It is of inferior description, and probably will soon be replaced by a better one.

DIRECTIONS.—In the fine season, or from September to May, a vessel from the westward would make Chúrnah island and the high land of cape Monze about the same time, at about 30 miles off in clear weather, and has only to avoid the foul ground to westward of the place by keeping the lighthouse to the northward of East.

Indus banks.—Approaching from the southward or south-eastward, no land is seen before making Manora point or the Lakki hills, and the Indus banks* are the principal danger. From a survey made by the author in 1867, it was found that a great extension of these banks had taken place since the former survey, and no doubt they have farther increased in the last seven years. They are of soft mud, with hard sandbanks near the river entrances, and at the Kukiwari mouth, the most projecting part, there are 11 fathoms, or 13 fathoms at high water, close to their edge. To south and south-eastward of this part also, there are 20 to 30 fathoms in the swatch, at only $2\frac{1}{2}$ miles distance.

By day the surf on the banks or, more surely, the discolouration of the water, which is remarkable, and extends some distance beyond the shoals, will be sufficient warning to a vessel of her approach, but at night great care is necessary. Unless a very wide berth is given, so as not to get less than 18 fathoms on the Kori bank, the soundings are no guide approaching them from south-eastward. A vessel should get a good departure from the coast near Dwarka, and give the banks a berth of 15 miles by night; if

* Many steam vessels have either grounded on these banks or have had narrow escapes.

after crossing the swatch she did not get less than 20 to 25 fathoms, she might alter course for Karáchi, not coming under 15 until the light is seen.

The indraught of the tide into the mouths of the river is only felt quite close in, the tidal current setting along shore, following the direction of the edge of the banks. The current of ebb, opposite the Hujamri mouth, especially from April to October, when the river is high, sets straight out to sea for 3 or 4 miles, accompanied by very marked discolouration of the water.

In passing the banks by daylight, if close in, herds of buffaloes are sometimes seen wading about in the water over the submerged land, and appear like trees. The Hujamri beacon is sometimes sighted, but is not visible from the great Kukiwari bank, and the entrance of the river may be recognized by the fleet of boats arriving and sailing. From this point the lead is a good guide and 10 fathoms is a safe depth hence to Karáchi, the lighthouse should bear when seen North to N. by W. $\frac{1}{2}$ W.

In the south-west monsoon cape Monze,* should be the land first made, bearing in mind the probable set to the S.E. It is often not seen until very close to, and care should be taken not to stand past the point into Sunmiyáni bay. A ship must avoid the coast to leeward of the port, and remember that, owing to the haziness of the weather, the present light will often not be seen more than 6 miles, and by day the surf is sometimes the first thing seen. Attention to the lead will give notice of the approach to the land. If she cannot make the place by daylight, it is better to heave to or work to windward when off cape Monze, and not bring the light to bear to northward of N.N.E.† A vessel drawing more than 19 feet should endeavour to be off the port at high water springs. (See next paragraph also.) When sighted the lighthouse should bear between E. by N. and N.N.E. If obliged to anchor a ship should do so with the lighthouse bearing N.E. distant $1\frac{1}{2}$ miles in 9 fathoms, veer a long scope of cable, and have a second anchor ready to let go. The *Athlete* in distress did ride outside at this season for weeks, being of too great draught to enter in the then state of the bar, and discharged cargo, but was in a very precarious position.

* In August 1870 the barque *Richmond*, bound to Karáchi, steered for the lighthouse, made no allowance for current, and ran ashore near the mouth of the Indus, about 50 miles below the port. She fortunately bumped over the outer banks into one of the channels, where she remained till after the monsoon, when she was lightened and brought safely to Karáchi.

† The ship *Alicia* in June 1868, not attending to signals, got too far in and, standing off to southward, was disabled by being struck by a heavy sea in the shoal water while attempting to tack, and wrecked on the bar while running for the harbour in a water-logged state.

During the fine weather vessels arriving off the port at night, or having to wait for spring tides, may anchor in from 5 to 8 fathoms, with the light N.E. to North, distant half to one mile, and must avoid the breakwater head which would not be visible. Many anchors* have been lost from anchoring in the monsoon. The mail steamer on arriving at night fires two guns, other ships are therefore requested not to do so.

PILOTS.—The pilots always come off in a pulling boat in the fine weather, and in a 50-ton cutter in the monsoon, no ship should attempt to enter without one, unless absolutely obliged to run the risk. The charge for pilotage is higher during the monsoon months. Attend to the signals hoisted on the signal flagstaff.

Vessels drawing 24 feet can now enter the harbour from 1st October to 15th May, and vessels not exceeding 21 feet draught can enter and leave without difficulty or delay at all seasons of the year; the depth in the entrance being 28 feet at springs and 25 to 26 at neaps.

TIDES.—It is high water, full and change, at Karáchi at 10h. 30m., average spring tides rise 9 feet, and neaps 4 to 6 feet above the low-water datum, but a reference to the tide tables, see page 13, is necessary owing to the great diurnal inequalities of time and height.†

Entering the port.—It is preferable to enter on the ebb tide. If obliged to attempt the entrance without a pilot, note by the ships in port whether ebb or flood is running, and pass about half a cable length off the beacon on the breakwater head, and steer to pass 100 feet to eastward of the bar channel buoys. If flood, allow for being set to eastward of the course; the signal for the depth of water in this part of the channel is hoisted on the small flagstaff. When deeper water is obtained steer for the mooring buoys and anchor near the first one, or stand along the line of the buoys giving the black buoy on Deep-Water point shoal a berth, and anchor opposite Manora jetty, or take in moorings. Vessels always ride at swinging moorings in the harbour, but require to have an anchor ready to let go before entering.

Leaving port.—In the fine weather a vessel may run down the coast S. by E. or S. by E. $\frac{1}{2}$ E. not coming under 10 fathoms: on this course she will begin to deepen after passing the Hujamri mouth, and when she deepens

* The *Sea Queen* lost two anchors, and the *Ann Black* and *Eliza* one each, in the year 1854.

						ft. in.
†	Mean H.W.	springs	above datum	-	-	- 8 9
	"	"	neaps	"	"	- 6 11
	"	"	L.W. neaps	"	"	- 3 3
	"	"	springs	"	"	- 1 5
	Diurnal inequality	high water	-	-	-	- 0 to 3 ft. 2 in.
	"	"	low	"	-	- 0 to 6 ft. 4 in.

to 20 or 25 in the swatch is past all danger. In the monsoon she should not bring the lighthouse to westward of north or come under 15 fathoms while it is in sight, or under 20 fathoms near the banks.

A tug is required for sailing ships leaving port during the south-west monsoon.

CHÚRNAH ISLAND consists of a sharp ridge of almost precipitous, light-coloured, limestone hills, which make from southward in a peak, 580 feet high. It is only 1,200 yards across, barren and uninhabited, and has no water. A few shrubs and some coarse herbage grow on the north side. It lies $3\frac{1}{2}$ miles off the nearest part of the coast, and shuts in behind cape Monze when bearing N.W. $\frac{1}{2}$ N. It is steep-to, and safe to approach, there being 5 to 6 fathoms within quarter of a mile. There is anchorage with the high part of the island bearing S.W. in 5 fathoms sand, and 2 cables off shore.

The channel between the island and the coast is quite clear, with 6 to 13 fathoms in overfalls, rocky bottom. North-eastward of the island, at a distance of 2 miles, is a small, hard, 5-fathom bank or overfall, with 7 and 8 fathoms round it. To the south-westward of the island the soundings are irregular, over rocky bottom, for 6 miles.

582.—**Sawákin (Suakin).**—The entrance to the port is now marked by three stone beacons, namely, two on the starboard hand entering and one on the port hand. All the buoys which formerly marked the channel have been removed.

Anchorage.—*H. M. S. Cyclops*, in 1859, anchored to the north-eastward of Quarantine island (on which is the observation spot) in 9 fathoms, mud, with Sheik Abdallah tomb bearing S. $\frac{1}{4}$ W.; this is the widest berth in the port. The holding-ground is not good in the channel north of Quarantine island.

H. M. S. Philomel, in 1879, anchored off the custom-house between Sawákin island and Quarantine island, in 5 fathoms, mud and sand, with the vessel's stern hauled in and secured to two guns which are situated a short distance eastward of the custom-house; there the channel is 500 feet wide. (*H. N.* 54-'80.)

(Bearings magnetic. Variation, $4^{\circ} 30'$ westerly in 1880.)

(*British Admiralty Hydrographic Notice*, No. 11, London, May 19, 1880.)

GENERAL REMARKS.—This part of the coast produces but little, the inhabitants are few, scattered, and migratory. The eastern part from the Habb river to Rás-Malán is the seaboard of a province feudatory to the Kalát state, called Lus-Bailá; the western portion belongs to Makrán, properly so called, and is all under the Khán of Kalát, as far as the boundary of the Gwádar territory. The different districts are described in their place. Water is everywhere bad and difficult to get, and few supplies only are obtainable at the villages; it is in great part an uninhabited desert, presenting a wilderness of hills and cliffs or arid clay plains.

SUNMIYÁNI BAY.—This great bay extends from Rás-Muwári to the eastern or little Hárá range of hills. From the former place the coast line extends in a general north by east direction for 19 miles, with a succession of rocky points and little bays, and thence turns to N.W., W., and W. by S., becoming sandy with sandhills on which grow small brushwood and coarse grass as far as the Hárá hills. The Púbb mountains recede gradually from the coast and take a northerly direction, increasing in height to the northward to upwards of 3,000 feet. On their west side is an extensive plain extending for 50 miles in breadth to the foot of the Hárá hills which run inland from the coast in a direction to eastward of north, and have been estimated at 1,500 feet; they are of light colour and irregular outline. This great plain is drained by the Púr-'Alí river, which has its mouth at Sunmiyáni. The town of Bailá, the capital of the province, stands in this valley about 45* miles inland.

SOUNDINGS.—On the east side of Sunmiyáni bay 10 fathoms will be found about 3 miles off shore, which is a safe distance to pass this part of the coast, but off Sunmiyáni this depth is 9 miles from shore, and the soundings decrease regularly to 4 fathoms at low water quite close to the bar off Sunmiyáni, and within a mile of the shore east of that place. The water deepens regularly, 20 fathoms being from 4 to 6 miles outside the

* 74 statute miles by road according to Outram's journal.

10-fathom line, and thence it increases gradually to 60 or 70 at the edge of the bank of soundings.

Close to northward of Ras-Muwári is a small bay with a sandy beach, opposite a valley between the Lakki ridge and a mass of detached hills, 560 feet high, which extend to and form the south bank of the Habb river, having cliffs along the sea face. The water is all shoal with overfalls inside this bay, the north and south points may be approached to one third of a mile or 4 fathoms, if necessary. A few fishermen are found here in the fine season.

THE HABB RIVER forms the western frontier of Sind; it rises in the mountains north of the Pubb range, and after a course of at least 150 miles, falls into the sea about 4 miles to N.N.E. of cape Monze. There is no fresh water within several miles of its mouth, except during freshes. The rocky hills on its south side end about a mile within the mouth, after which there is a plain on each side of the river bed, called the valley of the Habb. The north side of the entrance is low, with a sandy spit nearly across the channel. A small, isolated, rocky hill stands on this side of the river a little inland.

The entrance of Habb river is a tidal creek, nearly dry at low water and only frequented by fishing boats. It has 9 or 10 feet at high water, and there are generally breakers across the entrance. The channel outside high-water mark is variable, but easily practicable for a ship's boat. The tidal influence does not extend more than about 2 miles from the mouth.

From the river the shore is low and nearly straight as far as a point $3\frac{1}{2}$ miles north of it, and then forms a bay 5 miles across, on the northern extreme of which stands a detached, square, rocky hill called Chír-Chúrnah, or Chír-Chang, estimated at 100 feet high. It appears from a distance like an islet, but is joined to the main by a long, low, sandy isthmus forming the north side of this bay.

DANGERS.—On a North bearing from the southern low point of this bay are two shoals; the southern one, which is a 3-fathom patch, distant one and a half miles, the other a sunk rock distant 3 miles; this latter bears also S. by W. nearly 2 miles from Chír-Chúrnah, and both banks have 4 to 6 fathoms all round. Further, at three quarters of a mile N.W. of Chír-Chúrnah is a very low rocky islet, with 7 fathoms close-to and 5 between it and the land. The 10-fathom line carries a vessel one to 2 miles outside these dangers.

To northward of Chír-Chúrnah there are three little bays with high rocky points between them, beyond the last of which is the bottom of Sunmiyáni bay, whence the coast curves round to north-westward, and then runs nearly straight for 15 miles to the entrance of Sunmiyáni creek. Behind the first of these little bays are large backwaters, one of which has an entrance close to eastward of Chír-Chúrnah, and from these the

ground rises abruptly to the Pubb range, which ends just to southward of this part. From the bottom of the bay the hills leave the coast, which thence to Sunmiyáni consists of sand hillocks, covered with tufts of grass and small bushes.

SUNMIYÁNI,* the seaport of Bailá, is a small town consisting of a few hundred houses, built of mud, and standing on the east shore of an extensive backwater, which receives a number of large creeks. Its importance has much decreased since the British occupation of Sind, as most of its trade is now carried on through Karáchi, to which place the caravans from the interior now resort, instead of as formerly to Sunmiyáni. There are few vessels larger than fishing boats belonging to the place, and the trade is in the hands of a few Banyans settled there, who farm the customs from the Jám or ruler of Bailá. The town stands close to the shore, but is difficult to make out from sea, owing to the distance, and the small size and uniformity of the buildings. An inspector of the telegraph department is stationed here. The water is bad and hardly any supplies are obtainable.

The entrance of the backwater or creek is nearly 2 miles wide, but the deep channel is narrow, and close to the eastern bank ; it has 7 fathoms in places when inside, but on the bar the depth was in 1842 only $1\frac{1}{4}$ fathoms at low water. Outside the entrance a great shoal flat extends for nearly $2\frac{1}{2}$ miles, with breakers on its outer edge through which the entrance channel winds. There is a depth of 4 fathoms at low water quite close to the edge of this shoal.

No European vessels have ever entered the creek ; the largest native craft are about 30 tons burden, and have to lie about a mile from the town. Even for a boat it would be as well to have a fisherman of the place as pilot.

A vessel wishing to communicate with this place should anchor off the bar in 5 or 6 fathoms, and 7 to 8 miles from the town ; a fishing boat might be ordered by telegraph to be off the port at the time required.

The western point of the entrance, of low sand hills, has no bushes on it ; the town will be made out with a spyglass when open between the entrance points ; it should bear from the anchorage about N.N.E., or open from the eastern point.

The eastern point of the entrance has sandhills with small tufts or bushes, and between it and the town is a great mud flat, overflowed at high water, over which the Vundar river discharges its water during floods.

The main channel extends in a northerly direction about three miles to westward of the town, into an extensive swamp ; one branch turning to westward and running many miles inside the coast sandhills, and nearly as far as the Hárá mountains. In heavy rains the water of the Púr-'Alí

* See Admiralty plan, Sunmiyáni harbour, No. 39 ; scale, $\pi = 2 \cdot 0$ in.

river flows into these swamps, but it is generally all absorbed in irrigation. The west side of Sunmiyáni backwater is low, and partly overflowed. It is a branch on the east side of the main channel running up within a mile of the town that is used by native craft.

Directions.—In making Sunmiyáni the projecting shoal with breakers is the best indication of approach, but if the water be smooth, care should be taken not to shoal to less than 5 fathoms at low water. If the weather be clear Churnah island will be seen, and should bear S. $\frac{1}{2}$ E. It would be well to take a departure from this island in thick weather. There are also generally fishing boats entering or leaving the harbour. Caution is necessary.

From Sunmiyáni the coast continues low with sand hillocks and tufts of grass, with swamps and creeks at the back as far as the Hárá hills; the soundings are regular, and it is safe to approach by the lead to 6 or 7 fathoms, the 3-fathom line being from one to 2 miles off shore.

Tide.—It is high water, at full and change, off Sunmiyáni at about 10 $\frac{1}{4}$ hours; rise and fall 9 feet. The stream of tide is weak, and the flood comes from the westward and sets to southward round Cape Monze.

HÁRÁ MOUNTAINS TO RÁS-MALÁN.—From sea the land appears as a succession of rugged mountains, generally of light colour, with lower whitish-clay peaks called Shúr by the natives, but the coast line is for the greater part low, especially near the mouths of the rivers or creeks. The inland mountains are high. Jabal-Hingláj is a quoin-shaped mountain 3,500 feet high, 8 miles from the coast; and to left of it is a square-topped mountain, 3,800 feet, which resembles a castle with bastions, its sides appearing almost perpendicular; it is called by the natives Gúran-gatí,* and is very conspicuous. From Jabal-Hingláj the main branch of the Hárá mountains, which is of irregular outline, and has lower hills in front, extends in an E.N.E. direction at a distance of 8 to 10 miles from the sea, as far as the lesser Hárá hills.

Rás-Malán makes as a long line of high, light-coloured table land, ending in cliffs to seaward, and between it and Hingláj is a confused mass of lower hills and Shúr. There are no fixed inhabitants on this part.

SOUNDINGS.—The soundings between these points deepen regularly up to 18 fathoms at a distance of from 10 to 19 miles off shore, and thence quickly to no bottom; off Rás Malán the bank is almost precipitous outside the 18 or 20 fathoms line of soundings. The land is safe to approach to a depth of 10 fathoms, which are about 6 miles off shore. There is no danger inside this line, but 3 $\frac{1}{2}$ fathoms,† rocky bottom, with 6 fathoms close to, are found at 2 $\frac{1}{2}$ miles off shore to southward of Jabal-Ghuráb, the

* Col. Goldsmid.

† According to Haines' survey.

3-fathom line being generally one to $1\frac{1}{2}$ miles, deepening to 5 and 7 fathoms at 2 to 3 miles off.

RÁS-KACHARÍ is the south-east point of a range of low cliffs extending along shore, with a detached group of low hills rising from them. The coast forms a slight bay to eastward of this point, beyond which a low point is formed near the entrance of the Púr creek or river, the position of which is not accurately determined. Púr creek is a small salt water creek, but in rains discharges the drainage of the valley between the Hárá ranges. The coast is low and sandy from Sunmiyáni to the cliffs of Kacharí. In the bay to eastward of Kacharí, and about 2 miles inland, are several white, conical hillocks, called Daryá-Cham,* the highest being about 300 feet. They stand in a plain which extends from the back of the Kacharí coast hills inland to the foot of the Hárá range. A vessel might anchor in $3\frac{1}{2}$ fathoms $1\frac{1}{4}$ to $1\frac{1}{2}$ miles off shore in the bay to eastward of Kacharí, the soundings being regular.

At $2\frac{1}{2}$ miles to westward of Kacharí point the shore is low, and a small oblong hill stands near the beach, called Jabal-Ghuráb,† which at a distance appears like an island, and 4 miles beyond this are some rocks lying close to the shore and parallel to it, called Jazírat-Chahárduk, or Chahárduh, which are somewhat higher than the coast line, and therefore easily distinguished. Between Kacharí and these islets a large vessel should not come under 8 fathoms without great care, on account of the rocky overfalls already referred to.‡

From these rocks the coast is low for 12 miles as far as Jabal-Habb, a ridge of low hills coming down to the sea at 10 miles east of the Malán cliff. Khaur-Hingúr, or Hingúl, a shallow, salt-water creek forming the mouth of the river of the same name, is in the low land to eastward of Jabal-Habb, and 9 miles from the Chahárduk rocks. Fresh water is always obtainable in its bed at some distance from the sea. The river bed is of considerable size, but generally nearly dry; it winds close round the east side of Jabal-Hingláj,§ and has a long course || from the interior. Colonel

* These are some of the remarkable mud craters of this district, which are truncated cones of dry mud, the top of which resembles a cup filled to the brim with liquid mud, which trickles over the side at times. Ebullition takes place now and then from the centre of this pool, which is in some about 100 feet wide. They are also called Chandra-Kúp, or Chandar-Kúp. Kúp being Sanscrit for a well; and the prefix the name of a deity.

† Supposed to resemble a ship, whence the name; there is a legend of its being a ship miraculously turned into stone.

‡ Capt. Haines' memoir and observation book.

§ In this mountain is a celebrated Hindu place of pilgrimage, and temple, dedicated to the goddess Kalf; the mountain is also called Náuí, after a local deity.—Colonel Goldsmid.

|| About 140 miles by Col. Ross' map.

Goldsmid mentions a well of good water near the sea on the east side of the Habb hills.

RÁS-MALÁN is a prominent cape, formed by a mountain mass of clay, capped with impure limestone, presenting a steep bluff, with level top; the highest part is 2,050 feet above the sea, from which the cliffs rise abruptly with no beach. Great masses of clay, detached from the mountains, are frequently falling.

The cape is clear of danger, as also is the bay on its east side, in which a vessel may anchor in 4 fathoms a mile off shore, with the cape bearing S.W. b. S. There are no inhabitants nor water.

From this cliff to the Habb hills the shore is low with sand hillocks, behind which is a confused mass of low hills of the kind called shúr, and farther inland a high irregular range connects the high land of the Malán with Jabal-Hingláj. The great Gúrangatí mountain lies north of Malán bay, and 12 miles from the coast. There is a valley between it and the Hingláj range.

RÁS-MALÁN to RÁS-ÓRMÁRAH.—The Malán cliffs extend along the beach for 20 miles from the cape in a direction W. $\frac{1}{4}$ N., decreasing in height and ending in a cliff, after which the coast is low and sandy as far as Órmárah, with a wide plain extending far inland from the beach. The mass of high land over Rás-Malán is called Batt, it is divided at 7 miles from the cape by a great watercourse called Khaur-Batt, which is a gorge running quite through the mountains and having a salt-water lagoon with sandy bar between it and the sea. The mountains are lower to westward of this ravine.

The plain west of the Batt hills extends 8 to 10 miles inland to the foot of a range of mountains running nearly parallel to the coast in several ridges and called Tallu. They are of irregular outline, and join the Gúrangatí mountains. In this plain, nearly north of Órmárah east point and 4 miles from the sea, stands another mud crater or chandra-kúp; it is conspicuous, being a white cone at least 600 feet high.

SOUNDINGS.—This part is quite clear of danger, and the soundings are regular; but beyond the depth of 20 fathoms it shelves off quickly to no bottom. It is safe to approach by the lead, and is shallow a long way off-shore as Órmárah is approached.

RÁS-ÓRMÁRAH, or Aur-Márah, (often pronounced with a strong aspirate), is a peninsula formed by a detached mountain, which appears from sea like an island of a quoin shape until close in. Its highest part, the west end, is 1,400 feet above the sea. The top has a gentle slope to eastward and southward, and it ends on all sides in cliffs. It is of similar formation to the Malán and all the coast ranges, and its summit is only

accessible with great difficulty. The length of the southern face of this peculiar promontory is 7 miles E. by N. $\frac{1}{2}$ N. and W. by S. $\frac{1}{2}$ S., while the greatest breadth does not exceed 2 miles. It projects about 6 miles outside the general line of coast, to which it is joined at about the middle of the north face of the cliffs by a sandy isthmus nearly $1\frac{1}{2}$ miles wide. Extensive bays are thus formed on each side which give good anchorage, but are shallow near the land.

Órmárah village consists of a few hundred mat huts, containing probably 1,000 to 1,200 people who are chiefly fishermen. There is a little inland traffic with a district called Kolwah, and they possess many fishing boats, besides a few small Dengís which trade to Maskat, Karáchi, and the coast of India with salt fish, pish, grain, ghee, &c.; a few Banyans are settled here, and there is a telegraph office about a mile to westward of the village, where messages are received for all parts. The native village stands on the east beach of the isthmus about a mile from the cliffs and is filthy to a degree, reeking absolutely of decayed fish. A few hundred wandering herdsmen are scattered over the territory belonging to the village.*

Water is indifferent and scanty and brought from wells near the telegraph office; a few sheep and fowls may be got here, and excellent fish from any of the numerous canoes or fishing craft. Two and a half per cent. import or export duty is levied.

ANCHORAGE.—Órmárah east bay, called by the natives Dímízar, lying to the east of the isthmus, is the general anchorage for vessels visiting the place. It has sandy bottom except near the cliffs and is shallow off the town, so that the anchorage in $3\frac{1}{2}$ fathoms is distant $2\frac{1}{2}$ miles from the town. The east point of the cliff, which is about 500 feet high, bears from this anchorage S. by E. The water shoals regularly standing into the bay, and the east bluff point may be approached to half a mile. The beach dries off a long way from the town, making landing inconvenient at low water, and a shoal flat extends off the north side of the cliffs. From the anchorage the telegraph office should bear about W. by S.

This bay is open to easterly winds, which blow strong at times only from December to February, but are not violent. Once during the S.W. monsoon there generally occurs a blow from the east with rain, but not of long duration. If arriving during such a breeze it would be better to anchor in west bay, although communication with the shore would be more tedious. Native craft appear always to ride out these breezes. In the south-west

* The coast from Malán to Khaur-Kalmat, which has no other villages, is under this place, whose chief, or Náib, is appointed by the Jám of Bailá.

monsoon, and indeed after April, a long swell rolls round the point into the bay causing a surf on the beach, and making a vessel roll heavily.

A weak stream of tide is felt in the bay, the flood setting to the N. and N.E. round the bay, and the ebb the opposite way.

The isthmus north of the town has high sandhills in the centre, but the beach is low as far as the Batt hills. Khaúr-Gúrád is a creek in east bay, 13 miles from the town; it is shallow, and after rains is the mouth of a river. Khaur-Manjí is another such creek between the last and the Batt hills. The former is frequented by native boats.

The west bay of Órmárah, called Padízar, is similar to the other bay, but is shoaler and seldom visited, being open to W. and S.W. A vessel would have to anchor at least 3 miles off shore with the extreme of cliff about south. The mouth of the bay is nearly 8 miles across between the west high point of Órmárah and a point of the high cliffs forming Rás-Sakanni. Between these points the shore is low and sandy; at the bottom of the bay, and about 5 miles from the town, stands a small rocky hill near the shore.

RÁS-ÓRMÁRAH to RÁS-PASNÍ.—There are ranges of hills running nearly parallel with the coast, called Kúh-Tálár, nearly in continuation of those north of Órmárah. They gradually approach the coast and, on the north side of Pasní bay, the lower range of these hills is close to the sea. The coast between these places is desert the whole way, and has no villages except a few huts at Kalmat.

SOUNDINGS.—There are 5 and 6 fathoms close in to the southward of the cliffs of Rás-Órmárah, and 10 fathoms at 2 to 3 miles distance; from this depth it deepens rapidly for 6 miles to the edge of the bank, which runs nearly west from this place past Astálúh island, and off Pasní is 17 miles off shore.

Rás-Basúl is the west point of the cliffs, of which Rás-Sakanni, already mentioned, is the south-east point. These cliffs are continuous for about 10 miles, and are about 800 feet high, of light colour, and irregular outline, without any marked peak. They are the seaface of a detached mass of hills, called Kamgar, between which and the Tallu range is a wide plain, continuous with that lying north of Órmárah. These cliffs are safe to approach to a depth of 6 fathoms or a distance of 3 miles, and 3 fathoms will be found only half a mile off. The 10-fathoms line is 8 miles off, whence it deepens gradually to 16 or 18 fathoms, and thence suddenly to no bottom.

In bay close to northward of Basúl is a creek, the mouth of a large watercourse or river of the same name, which flows from the interior between the Tallu and Tálár ranges, and takes its rise in the mountains of

the Kolwah district. The land near the sea about its mouth is very low and all swampy.

KHAUR-KALMAT,* lying halfway between Rás-Órmárah and Rás-Pasní, is the largest creek on the coast, having 5 and 6 fathoms inside, with considerable width, but the bar has only 4 or 5 feet at low water. The entrance is rendered difficult by rocks lying upwards of a mile outside the bar; the tide also is strong in the entrance. The land is very low with mangrove swamps near the entrance, and to the eastward as far as Basúl river. At some distance inside the mouth, the creek divides into several branches, which beyond the range of the seawater are water courses. Near the mouth of the creek are a few huts with fishing boats, and 3 miles up, an old tower on the west bank with a few date trees.

The anchorage off Khaur-Kalmat is bad, the 5-fathoms line being 6 miles from the entrance; the bay between Basúl and Khaur-Kalmat is also shallow, and soundings in it irregular. The coast being so low is hardly visible when the vessel is in 4 fathoms, and it is never sighted unless bound for the place.

ASTÁLÚH† island, called also Satálúh, Haft-talár, and various other names by different classes of natives, is $2\frac{1}{2}$ miles long east and west, by half a mile in breadth; it is table-topped with cliffs all round, and a partly detached hill at the west end which is a little higher than the rest of the island. This peak is 260 feet above the sea, and is visible 20 miles. The island rises perpendicularly out of the sea, except on the north side, about the centre of which is a little sandy point, and at the north-west corner there is a sandy spit forming a little boat harbour. There are rocky ledges off both ends and some detached rocks above water along the south face, but all are less than 2 cables from the cliffs, and the island may be approached on all sides to 3 cables.

There is no water on the island, which is barren, and only frequented by boats from Maskat, which catch fish and large numbers of turtle.

Sail Rock.—At seven cables from the centre of the south side of Astálúh is a little islet or rock, 20 feet above the water, which looks like a boat under sail. It is quite steep-to, and a vessel has passed between it and the island, which passage, however, is not recommended.

WEBB BANK‡ is rocky, a mile long east and west, with $3\frac{1}{2}$ fathoms, or possibly only 3 fathoms, least water, and lies $4\frac{3}{4}$ miles S.S.E. from the east point of Astálúh island. The sea breaks heavily on it in the south-

* From Haines' memoir and Col. Goldsmid's route.

† Kempthorne says this place was a rendezvous of the Persian Gulf pirates, and that the remains of a look-out tower erected by them were visible in 1829.

‡ Discovered while laying the telegraph cable in 1864 and named after Mr. F. C. Webb C.E., then in charge of the operations; examined afterwards by the author.

west monsoon, but in the fine season a small ship might safely pass over it. The channel between the bank and Sail rock is clear, with overfalls from 5 fathoms, rock, to 11 fathoms, mud. To the southward of this shoal, 20 fathoms, mud, are only $\frac{3}{4}$ of a mile off, and at 5 miles, 150 fathoms. Passing the shoal at night 25 fathoms is a quite safe distance.

The channel between Astálúh and the mainland requires caution, as one or two vessels have grounded* through keeping too near the island, which must not be approached under two miles on account of the following dangers.

Dangers.—There are three small shoals to northward of Astálúh island, each only a half to three quarters of a mile in extent, of which two are close together; their outer edge is $1\frac{1}{2}$ miles from the island; they have $1\frac{3}{4}$ fathoms at low water, with 3 to 4 fathoms between them and the island, and 5 close to northward of them. The third bears N.E. from the east bluff distant $1\frac{1}{2}$ miles, has $2\frac{1}{2}$ fathoms on it, and is steep-to.

The main land opposite is very low, and has shoal water off it for 4 miles, leaving a clear channel of about 7 miles, with soundings of from 5 to 8 fathoms, the bottom being sand, rock and shell.

There is a narrow channel between these shoals and the island, and a vessel wishing to anchor off the island, might do so close in with the east point bearing South in 6 fathoms.

In passing Astálúh island at night, 25 fathoms muddy bottom will be a good distance; under 20 fathoms there are rocky overfalls and the lead is not a guide, nor is it a safe guide for the channel inside the island, which should not be attempted at night without great caution.

JABAL-ZARRAIN, called also Rás-Pasní on Haines' chart, is a conspicuous hill forming the extreme south point of the great bay in which stands the village of Pasní. It is about 400 feet high, of brown colour, and of barn shape, especially from the eastward or westward. When bearing North it forms a long notched ridge with sloping ends, and, at a distance, appears like an island, as the land around it is low. It is a good landmark for the point, as it rises from the water's edge, and may be approached to about one mile or in soundings of 5 fathoms, inside which the soundings are somewhat irregular. The 10-fathoms line is 7 miles to the southward, the water deepening thence gradually to 20 fathoms, and afterwards quickly to the edge of the bank. In Pasní bay the soundings are all under 10 fathoms.

To eastward of this cape the coast forms a small bay, beyond which is a low point called Rás-Jaddi, bearing N.N.E. $\frac{1}{2}$ E., $1\frac{1}{4}$ miles distant. A

* E.I.C.S. *Benares*, on 29th March 1814, passing inside this island, and carrying 6 fathoms suddenly grounded on one of these shoals. The details of them here are taken from Haines' memoir.

small cluster of clay hills of fantastic shape, and about 150 feet high, rise 300 yards from the point. From Jaddi point a rocky spit extends half a mile, with 4 fathoms close to the edge, so that vessels require caution in passing it.

PASNÍ* village lies 3 miles N.W. by N. from Rás-Jaddi, the coast between being low, and forming a bay. It is built of mat huts, with a small fort of mud and stone, and contains with its district about 500 inhabitants; those at the village are chiefly fishermen, but there are a few larger boats which trade to Gwádar and Karáchi. There is a telegraph inspector here, and the office is visible a little to westward of the town, but messages are not now received. The coast from this to Kalmat is under Pasní. The water here is not good, and there are no supplies except fish, and occasionally a few sheep and fowls.

There is no vegetation near the place except a few date trees to southward; there is a mass of high, white sandhills to south-west of the village, and to northward of these a number of the Shúr hills.

ANCHORAGE.—The bay is shallow and the anchorage is $1\frac{1}{4}$ to $1\frac{1}{2}$ miles off shore, with the town bearing W.N.W. and Rás-Jaddi about South, in 3 to $3\frac{1}{2}$ fathoms. The soundings shoal regularly, and the bottom is sand. There is considerable surf after April, and it is then difficult to land.

SHÁDI-KHAUR is a river which breaks through the hills north of Pasní, and ends in a large shallow creek with swampy banks just inland of the village; its mouth is half a mile to north-eastward of the village, where it has formed a projecting point, with dry banks extending 6 cables off shore. Boats even can only enter at high water. By keeping the village to the northward of West a vessel will be well clear of these banks.

The soundings between Pasní and Astálúh vary from 5 to 9 fathoms, with overfalls in places, the shoal casts being hard, but there is no danger.† Near the shore the water is shoal all the way to Khaur-Kalmat, 3 fathoms being found 2 to 3 miles off the land.

The coast north of Shádi-Khaur curves round to eastward and runs about E. by S. to Kalmat; at 8 miles to north-eastward of the town is a small boat harbour, with one to 2 fathoms inside, formed by a projecting point with some rocks off it. To northward of the river the shore is low and swampy for about 2 miles, after which the lower range of hills, chiefly Shúr, is in parts quite close to the sea. About half way between Pasní and Kalmat these low hills recede from the shore which is then sandy. In

* The chief of this place is under the Náib of Kej, a great feudatory of the Khán of Kalát.

† Haines' memoir.

this part are two small creeks or watercourses not shown on the chart, the eastern and larger is called Rúmra.*

The country immediately inland of this part of the coast is quite unknown as far as the Kej valley, it is believed to be a hilly and rugged desert. There is a route from Pasní to Kej, said to be about 70 miles.

RÁS-PASNÍ to GWÁDAR.—A range of mountains in continuation of the Tálár range lies parallel with the shore and 8 to 10 miles inland; its eastern part is called Chakúli-Kúh, and the western, which is separated from the eastern by a river called the Sawur, is known as Kúh-Darám, and is much higher and more conspicuous. On the summit of this range is a small barn-shaped peak 3,200 feet high, called Mukh, which is conspicuous from seaward. Lower clay hills rise in front of these, in parts close to the sea, as detailed further on.

The coast appears desert, but, a little distance inland, it is fertile in places and produces corn and cotton. Between Pasní and the limit of the Gwádar territory, about 14 miles east of Gwádar, is the seaboard of the district of Kolanch, which extends 20 to 30 miles inland and is under various petty chiefs, all subordinate to the Náib of Kej. The only village near the coast between Pasní and Gwádar, is Kappar. The population of the whole of this large district has been estimated at 2,000.

SOUNDINGS.—From Jabal-Zarrain the soundings are regular, 10 fathoms are about 7 miles off shore, decreasing to 5 near Gwádar bay; and the edge of the bank, which is almost or quite precipitous beyond 20 fathoms, is about 16 miles off shore, and 8 miles outside Gwádar point. The bottom is mud in soundings greater than 5 fathoms, with patches of rock and overfalls of one fathom up to 12 fathoms.

RÁS-SHAMÁLBANDAR is a cape formed by the east end of a long ridge of white clay-hills, which are very precipitous, and stand close to the sea with low ground at the back. They extend along shore for 19 miles, and are 400 to 500 feet in height. The shore is low from Jabal-Zarrain to this cape, a distance of 23 miles, and Shamálbandar is easily distinguished as being the first high land near the sea after passing Zarrain, it forms a good bluff, but there is nothing remarkable in the outline of the hills, which are of even height but jagged. The cape should not be approached under 5 or 6 fathoms, as a reef of rocks projects one mile from the shore, on which the water shoals suddenly.

†To eastward of the point is a bay which is frequented by fishing boats, and affords small vessels shelter in westerly winds, and the low east point

* Haines' memoir, and Col. Goldsmid's route.

† Haines' memoir.

of the bay is 11 miles W. $\frac{1}{2}$ S. from Jabal-Zarrain, the intermediate coast being nearly straight. It is low and sandy, and safe to approach to a mile in 5 fathoms; but the bay is shallow near the shore, especially near the mouth of a shallow creek or river, 3 miles to eastward of Rás-Shamálbandar, where 5 fathoms would be 2 to 3 miles off.

Rás-Shahíd, the southernmost point of the shore hills or cliffs, is 5 miles west of Rás-Shamálbandar, and has a small bay on its west side, with cliffs all around. It forms the extreme of the land either from near Gwádar or Jabal-Zarrain and is clear of danger, there being 5 fathoms within a mile of the shore.

Rás-Kappar is a point easily known by a partly detached, table-topped hill nearly 800 feet high, with bluff ends, and situated at the west end of the hills extending along shore from Shamálbandar. It projects but little from the line of coast, and there is a depth of 3 fathoms at 3 cables distance. The cliffs are continuous from this to Shamálbandar, except between 4 and 7 miles from Kappar, where there are three gaps or notches, through one of which the Sawur river reaches the sea, forming a large salt water-creek. There is no beach between this place and Shamálbandar except at low water, and then it is not continuous. There is a small village or settlement of the same name near this cape, and adjoining the sea.

SAR, or Jabal-Sar, the east point of Gwádar bay, and 15 miles W. $\frac{1}{2}$ S. from Rás-Kappar, is a small white quoin-shaped clay hill, 560 feet high with a perpendicular cliff to eastward, rising from the sea. It is connected with the main by a low sandy isthmus, and to northward of this is a shallow bay extending back more than a mile; beyond which again the coast is nearly straight to Rás-Kappar, and is sandy with low hills, principally Shúr, near the coast.

At 6 miles to the westward of Kappar, is a small hill called Kúh-Dímak, standing a little inland. It is of darker colour than the hills near, has several little paps on the summit, and is among the mass of Shúr hills extending along shore from behind Rás-Kappar.

At about 9 miles west of Kappar is a small creek or river called Khaur-Barámbáb, which is the eastern boundary of the Gwádar territory.

There is no danger between Sar and Kappar and the coast may be safely approached to a depth of 5 or 6 fathoms, or about a mile distant. From 10 to 15 fathoms is a good depth to pass this coast in if going to Gwádar, as then even if hazy it would not be possible to pass the place without seeing it; but if not going to Gwádar 20 fathoms is a better depth to lead clear outside Gwádar head.

GWÁDAR,* the principal town on the Makrán coast, stands on a sandy

* Before the establishment of a British political officer in 1862 on account of the telegraph, the town was periodically plundered by the inland Balúch, but, their inroads

isthmus to the northward of Gwádar head, a rocky promontory similar to, but not so high as, Rás-Órmárah. It contains about 5,000 inhabitants, and is built in great part of mat huts, but has a square fort in the middle with a high tower on which the flag is hoisted, and round which are clustered a number of mud and stone houses; it is nearly as filthy as Órmárah. There is an Arab Wálí or governor, with a small garrison of about 20 Arab soldiers for the Sultan of Maskat; the population is chiefly Balúch, who live by fishing; a coarse cloth also is woven here, and pish mats, &c. made.

There are also a few Arabs and Banyans, the latter of whom carry on nearly all the trade, and farm the customs for a varying sum, which in 1862 was Rs. 10,000 annually. There are many migratory Balúch from the interior, who build temporary huts on the plain, and carry on the trade with the interior, whose numbers, of course, vary much. Many boats belong to this place, their number has been estimated at 250, besides 30 large dengís, or sea-going boats; many boats, some of them large, are built here. The traffic with the interior by caravans is considerable, chiefly with Kej, Panjgúr, &c.; the vessels of this port trade to Karáchi, Maskat, Basrah, Bombay, and the Malabar coast. The chief imports are piece goods, sugar, rice, timber, &c.; the exports cotton, wool, ghee, salt fish, and shark fins, and some very fine dates from Panjgúr, also pish leaves and mats, &c.

Telegraph.—There is a telegraph office at Gwádar, where messages are received for all parts, and a British political officer is stationed here. The mail steam vessels call here weekly both on the up and down journey, and are doing an increasing trade, which promises to become important.

The following supplies are obtainable—flour, sheep, and fowls and eggs, and a few vegetables, all cheap, but not in large quantities; also rice, ghee, and other articles of native food; fish is abundant and good. Water of fair quality is obtainable near the telegraph office in wells, but there are no

having been put a stop to, the place has wonderfully increased, and developed its trade. It came into the possession of the Maskat Arabs at the end of last century, having been granted to them by Násir Khán of Kalát, and has since remained in their hands. It was plundered and burnt by the Portuguese in 1580, but they do not appear to have had any permanent settlement here, as has been stated. See Manuel de Faria y Souza "Portuguese Asia." In a valley on the hills to seaward of the town, is a remarkable bund or dam of masonry, which converted part of the valley into a reservoir for rain water. It is now ruinous, but its execution is far beyond what the present people of the country are capable of, the stones being dressed and bedded in courses, and further dovetailed and joggled together; it does not appear to be European work. On the highest part of the same hill, and overlooking the town, is a rude rampart of loose stones, loop-holed for matchlocks. The oldest inscriptions on the tombs south of the town date about 400 years back, they are not remarkable. The name is also pronounced Jwádar, and the final r sometimes sounded like l. The territory dependent on this place extends from the Barámbáb creek, to Rás-Pishkán, and inland as far as Kúh-Darám.

water casks. There are no jetties or any convenience for landing goods; but native boats for cargo can be got.

There are a few date and banyan trees near the town, and trees have been planted near the telegraph office, which is a large block of buildings with a flagstaff north of the town; the northernmost detached building is the Residency.

GWÁDAR HEAD is a block of high land of unequal height, sloping irregularly, 7 miles in length east and west, by only $1\frac{1}{2}$ miles wide; the low sandy isthmus joining it to the main is only 800 yards wide in the narrowest part, and on this the town and other buildings stand. It has cliffs all round, the highest part of which is the town bluff, which rises just over the town, and is 480 feet high; the eastern point, called Rás-Núh, is a bluff 280 feet high, and may be known by a single tree standing close to the cliff. At three-quarters of a mile to the south-westward of Núh, is a small bay where the cliffs are low, with sandy beach, called Bandar-Hairám, which is frequented by fishing boats. The west point of the headland is called Rás-Kamíti, where the cliffs are only 70 feet high.

This headland is conspicuous from the eastward, where it appears like an island of quoin shape, but from the southward and westward less so against the land behind, it also then shows of a darker colour, while from the eastward the high white bluffs are striking; it is visible 24 miles.

EAST BAY, or Dímizarr, has Gwádar head on the south side, and on the west the sandy isthmus, from which the coast curves gradually round to Sar point, being low and sandy the whole distance.*

On the north side of the bay is a mass of white clay hills, of very remarkable outline, called Jabal-Mahdí, which forms a precipitous ridge rising abruptly out of the plain, and having perpendicular cliffs on the south side. It is 4 miles in length east and west, the centre bearing about North of Rás-Núh, and there is a gap of low land 2 miles in width between it and Sar cliff. The highest peak is a sugarloaf at the east end, 1,370 feet high, to the left of which is a curious Asses-ears peak, 1,360 feet high, the furrowed sides of which resemble Gothic architecture; and which is now known as Cathedral rock. From the east, this range, as well as Sar and Gwádar head, appear like islands. Mahdí hill† is close to the beach at its east end, but more than a mile inland at its west end, opposite to which is a small creek.

The Darám range decreases in height north of Mahdí hills, and ends suddenly in a remarkable notch, or rather two great perpendicular steps,

* See plan on Admiralty Chart, Maskat to Karáchi, No. 38, scale, $m=0.5$ in.

† Near the foot of this hill is one of the curious mud craters; it is small and but slightly elevated above the plain.

called Garr, which bears N.W. by N. 18 miles from Gwádar, and is a good landmark, being 1,550 feet high. There is a great plain at the foot of the Darám hills, extending to Jabal-Mahdí, and from Garr to the sea. In this plain is a district called Nigúr, where there are seen scattered hamlets, and much cultivation.

At the back of the Darám range are seen, when near Gwádar and in clear weather, the peaks of Kúh-Saiji, 3,260 feet high, forming part of a chain running east and west about 20 miles inland; they are not remarkable in appearance.

SOUNDINGS are regular to southward of Gwádar head, outside of 10 fathoms, or one mile, deepening rapidly to 20 fathoms at 3 to 6 miles, and to no bottom at 8 miles off, the east end of the head having deeper water near than the west. Inside of 10 fathoms there is hard bottom in places, but outside that depth it is all mud. Gwádar bay is clear of danger, the water is shoaler near the cliffs than nearer the north side: at the bottom of the bay, 3 fathoms are $1\frac{3}{4}$ miles off shore, while there is the same depth within half a mile, opposite Mahdí and Sar. With Rás-Núh S. $\frac{1}{2}$ E. the depth across the bay is not more than 5 fathoms at low water.

Spit.—At a mile S. $\frac{3}{4}$ E. from Rás-Núh is the pitch of a rocky spit extending 9 cables off the low rocky point outside Rás-Núh. It has 10 fathoms close to outside and 4 fathoms on the tip, inside which it shoals rapidly to the shore. The whole of Mahdí hill open outside Rás-Núh leads clear to eastward of the spit, and if the peaks of Mahdí hill are visible over Rás-Núh, the vessel is not too close in. By not shoaling less than 12 fathoms, until Rás-Núh bears N. by W. will also lead outside it. There is generally a ripple over it, and in the south-west monsoon it breaks.

Rás-Núh has 6 fathoms at 3 cables distance, and is quite safe to approach after passing the above danger; the soundings across the entrance of the bay north from the point are 6 to 7 fathoms, sand, inside which the water shoals regularly over sandy bottom.

Half-way between Núh and the town a projecting point of cliff forms a boat harbour where native vessels are laid up, or boats take shelter.

GWÁDAR ANCHORAGE.—In entering the bay, after clearing the spit and rounding Rás-Núh, stand well across, bringing the telegraph office W. by S. or W.S.W., and take up an anchorage according to depth, avoiding the telegraph cable; the nearer in, the easier to communicate with the town, and the smoother the water. The whole of the town shut in with the west bluff of Gwádar Head, or the Residency flagstaff bearing West, will be clear of the telegraph cable. A mooring buoy has been laid down, and a ship drawing 17 feet may safely make fast to it, or anchor close to it. A good berth for a larger vessel is about half a mile east of it.

The east bay is well sheltered from south-westerly winds and sea, but in the monsoon the long, low swell rolling round the point causes a vessel to roll violently. In easterly winds it is sometimes difficult to communicate with the shore, but the author has never seen an easterly gale here strong enough to endanger a ship; a steam vessel calling at such a time might enter the west bay. See next chapter.

DIRECTIONS.—Darám barn, or Mukh, is conspicuous on all bearings, and Mahdí hill can hardly fail to be recognized; in hazy weather, when nearing Gwádar, keep in soundings of 12 to 15 fathoms, which will lead within 2 miles of Gwádar head, readily known by the tree on Rás-Núh. The next point to the westward is low and cannot be mistaken for it. In standing for the coast from the southward a vessel is liable to be thrown out of her course by the currents which from September to April sometimes set one to $1\frac{1}{2}$ knots along shore in either direction; in the south-west monsoon always to eastward, but sometimes hardly perceptible.

By night, especially, keep a good look out for the fishing boats and canoes with their nets. A blue light would be answered from the telegraph office, and a lantern will be hoisted on the flagstaff.

In the event of dense fogs a stranger would do well to wait, as they always clear off before noon.

Tides.—It is high water full and change at about $9\frac{1}{2}$ hours; rise and fall 8 to 9 feet. The stream is hardly perceptible, the flood sets to the eastward.

CHAPTER V.

GWÁDAR HEAD TO RÁS-AL-KÚH.

VARIATION in 1874, $0^{\circ} 10'$ East to $0^{\circ} 40'$ East.

GENERAL OBSERVATIONS.—Between Gwádar and Rás-al-Kúh, the country, although still barren, is less absolutely desert than the part east of Gwádar; its general character continues the same, the shore in parts is low, the mountains being some distance inland, but there are many high rocky points and hills, near or close to the sea. There is no town of any importance, at the present time, but several villages or settlements, the population, though scanty, being more settled than on the eastern part.

The boundary of Persia and Balúchistán, as recently determined, is in Gwatar bay, a little to westward of Kúh-Darabúl. The old boundary of Makrán proper is a pillar of stones, said to be still in existence on the hills north of the Sadaich river, beyond which is the mountainous district called Báshakird, which is quite unexplored, except the low and narrow district near the coast.

GWÁDAR WEST BAY, called Padízar, is a fine bay, nearly circular in shape, over 8 miles wide at the entrance, between Rás-Kamíti and Rás-Pishkán. Gwádar isthmus, over which is seen the town, forms its east side, and thence the coast curves round to westward continuing low as far as Kúh-Tuzhdán, a small ridge of low hills on the shore to northward of Pishkán. Garr mountain, which bears North from near the centre of the bay, is a conspicuous landmark. A small creek at the head of the bay, and 12 miles from Gwádar, is called Khaur-Ankara, the land near it is marshy.

RÁS-PÍSHKÁN, or Físhkán, is a narrow rocky point of low cliffs less than 20 feet high; a rocky spit, on which the water breaks, runs out for $3\frac{1}{2}$ cables in an E.S.E. direction from its east end. The west coast of Padízar runs to N.N.W. from this point forming three little bays separated by two bluff rocky points, and then trends to the eastward towards Tuzhdán hill.

SOUNDINGS.—The bay is clear of danger; Rás-Kamíti is steep to on its north side, but shallow water extends 3 cables to southward, or between the point and a small islet to south-eastward. The depths are 8 to

9 fathoms between the entrance points, and thence it shoals gradually. There is good anchorage in 4 fathoms, sand, with Rás-Kamíti bearing S.S.W. and the telegraph office East $2\frac{3}{4}$ miles off shore; or on the other side with Rás-Pishkán South distant 3 miles in 4 fathoms, the end of the breakers on the spit, S. by E. There are 10 fathoms within 2 miles outside Pishkán.

RÁS-GUNZ is a bluff point, of light colour, about 200 feet high, forming the east point of a projecting higher piece of land called Katágar, the southernmost part of this coast. From Gunz the coast extends north, forming a large bay between it and Rás-Pishkán, known as Bandar-Gunz, the west side of which is a succession of rocky points of cliff with sandy beaches between them, the north side being low as far as Pishkán. Curious hills rise a short distance from the shore and extend nearly to the Dasht river, having rugged peaks and pillars of clay, and north of these is the great plain or valley of the Dasht.

Rás-Gunz is conspicuous from westward, but from eastward it is not easily made out. Small vessels find shelter in the bay in westerly winds, but it is quite open to the eastward.

RÁS JIYÚNI, the west point of Katágar high land, and east entrance point of Dúhat-Gwatar, is distant $7\frac{1}{2}$ miles W. by S. from Gunz; it is a cliff about 100 feet high, and a line of cliff is nearly continuous between these places, having sometimes a sandy beach in front. At 2 miles to eastward of Jiyúni a low point of cliff, about 20 feet high, called Rás-Garnán, projects half a mile beyond the line of the higher cliffs, forming the southernmost point of the coast.

SOUNDINGS.—The soundings in Bandar-Gunz are regular; 10 fathoms are 4 miles off the bottom of the bay, and the anchorage in 3–4 fathoms, about a mile off shore. Outside Rás-Gunz there are 10 fathoms within a mile, and off Jiyúni at 2 miles, the water outside this deepening regularly but quickly to the edge of the bank about 12 miles off shore. Inside the 10-fathom line there are overfalls of 2 fathoms at a cast off Rás-Garnán, but no danger more than one mile off shore.

GWATAR BAY,* or Dúhat-Gwatar, also written Watar, is an extensive bay, nearly 16 miles wide between the entrance points, and 8 deep. The cliffs of Rás-Jiyúni extend for 2 or 3 miles along the bay, after which the east side is sandy with rocky hills at a little distance from the beach; the whole north side of the bay is very low, with many creeks and mangrove swamps, extending some miles inland, the west side being a succession of bluff points, with table hills over them, and sandy beaches between them.†

* Sometimes written Gwattar.

† See plan on Admiralty chart, Maskat to Karáchi, No. 38, scale, $m=0\cdot5$ in.

The hills near the east shore are of even outline, but a little inland are of fantastic shapes, and a remarkable pillar, one of the highest, is very conspicuous all over the bay. Opposite the centre of the bay, and 9 miles inland, is a detached table-topped hill about 500 feet high, with sloping sides, called Kúh-Darabúl, which is seen in clear weather outside the bay, and is the only land seen when crossing the bay.

RÁS-FASTÁ, a point of cliff 45 feet high, forming the west extreme of Gwatar bay, is the end of a detached ridge extending along shore for 6 miles to W.N.W., and rising out of the water. It forms the south side of a small bay or bandar, resorted to by native craft for shelter, the other side of which is formed by a higher and nearly parallel ridge of table hills, with precipitous sides, which forms several bluffs and points, ending just to southward of Gwatar village. At the back of these hills, and quite detached, stands a square rocky hill, 430 feet high, the top of which, seen over the lower hills in front, resembles a fort or castle, and is a very good landmark. All the rest of the country behind these hills is a low plain extending far inland.

At a mile east of Rás-Fastá is an islet 108 feet high, table topped, with cliffs all round, and hardly quarter of a mile across. It is rather difficult to make out against the cliffs behind, but shews well from the westward. It has rocky ground with one to 2 fathoms all round at a distance of 3 cables, and there is a passage between it and Fastá, of 3 to 6 fathoms in overfalls. Rás-Fastá may be approached to half a mile; there are 3 fathoms close in. The passage round the north side of the islet is clear, but Fastá-bandar is not fit for a vessel drawing more than 12 feet; a larger vessel should anchor to the north-eastward of the islet.

RIVERS.—Of the creeks at the head of Gwatar bay, already mentioned, the eastern one is the Dasht river, or Khaur, which is the largest river on the coast, running from N.E. through the district of the same name, the valley of Kej, and rising to the eastward of Panjgúr; it is tidal for 12 to 15 miles from the bay, and has not been examined. The western large creek, which enters the sea close to Gwatar village, is the mouth of the combined stream of two rivers, one of which flows from the northward, past Píshín, and through the district of Báhu; the other from the north-westward, past Kasrkand and the district of Dashtiyári. It has a shallow bar, and several fathoms water inside, being a tidal creek for some distance. There are other creeks lying between these two, but not large ones.

The villages in the bay are Jiyúni and Gwatar. The former is a petty village on the east coast, about $2\frac{1}{2}$ miles to northward of the cape.* The

* It was formerly more important, but suffered from the attacks of the Gulf pirates. It is in the Dasht district, which is under Kej, and the coast from Píshkán to the Gwatar territory belongs to it.

Dasht district, especially the part bordering on the river, has many villages, and is tolerably fertile.

Gwatar village is small and built of mat huts, with probably 200 to 300 inhabitants. There is a mud tower for defence. It stands near the creek already mentioned, where the inhabitants, who are fishermen, keep their boats. This place is under the chiefs of the Báhu-Dashtiyári districts, who are tributary to Persia, and whose territory extends as far as Chahbár. Little or nothing can be obtained either at this place or Jiyúni. There is little trade here of any kind.

SOUNDINGS in the bay are regular, over muddy bottom, decreasing from 6 and 7 fathoms at the entrance to 3 fathoms $1\frac{1}{4}$ miles off the low land at the head. Rás-Jiyúni is clear on its south side, but a reef extends half a mile off shore to westward of it, and in front of Jiyuni village. Off Gwatar village and the west coast there are 3 fathoms at half a mile distant, and no danger outside that distance. The soundings in Fastá-bandar, after passing the islet, are 2 to 3 fathoms mud.

Gwatar Flat.—There is a remarkable flat, extending a long way outside this bay, which is useful as a guide; it has 10 fathoms at 10 miles distance outside the line of coast, and thence deepens gradually to 15 at 17 miles off, after which depth the edge of the bank is quite abrupt. The bottom is of white clay, very tenacious and gritty. The most projecting part is nearly opposite the centre of the bay, and the soundings on it are all perfectly regular.

FASTÁ to CHAHBÁR.—The soundings are very regular and the coast quite clear of danger; the bank of soundings is narrowest opposite Kháki-kúh, where it is only 7 miles wide, and 10 fathoms are only one to $1\frac{1}{2}$ miles off shore from that point to Chahbár, the coast being steep-to, and soundings little guide unless taken quickly. Off Barís there are 10 fathoms at 3 miles distant, the bank here beginning to widen out towards the great flat. The bottom is everywhere mud over 10 fathoms.

RÁS-BARÍS or Brís is the western extreme of a long line of perpendicular white clay cliffs with a perfectly level summit, extending 7 miles along shore, and estimated at 200 feet high. Between these cliffs and those of Rás-Fastá, is a gap of about 2 miles with low shore, and falling back within the line of cliff, which is a nearly straight line from Fastá to this point. To northward of Barís a small shallow bay is formed, in which are a few huts forming the fishing village of the same name.

Behind Rás-Barís, and detached from the sea cliffs, is a mass of much higher, extraordinary, white clay hills, with very remarkable peaks.

The north side of Barís bay is low and sandy, and the coast thence trends to W. by N., continuing low and forming a slight concave as far as a dark hill of round form, standing near the sea, with cliffs on its seaward face.

It is 18 miles from Baris, and called by Captain Haines Pád-kúh; it may be 1,000 feet high.

Aspect of Coast.—Baris cliff with the remarkable jagged range behind are easily known, Pád-kúh being remarkable as being of darkish colour, and between them, 9 miles inland, stands the high ridge of mountains called Kháki-kúh. It is 2,000 feet high, and of white clay, presenting a vertical face southward and extending some miles east and west. It has a deeply indented outline, and from westward forms a remarkable asseseers peak, with a bluff to right of it. The high land on the east side of Chahbár bay, of convex even outline, with cliffs at the north end, and nearly 1,000 feet high, is seen beyond Pád-kúh. It is detached from any other hills.

Kinj river, or Khaur, is the mouth of a small watercourse issuing through a gap in the coast hills to westward of Pád-kúh, with a few date trees. To westward of this are rocky hills with cliffs adjoining the sea, forming a succession of small points and bays, as far as Chahbár point, the hills gradually decreasing in height towards that point. Inland of these coast hills is a great plain continuous with that north of Chahbár bay, and extending many miles to westward.

CHAHBÁR BAY* is a great bay or inlet, $7\frac{1}{2}$ miles broad at the entrance, by 12 miles in depth. The shore on both sides is rocky with cliffs in places, to about 4 miles from the entrance, but the whole of the rest is low and swampy, and seldom seen from a ship. A range of mountains runs about parallel with the coast 8 miles inland from the head of the bay. A high quoin-shaped peak on these, 2,400 feet high, and bearing North from about the middle of the bay, is the most conspicuous.

Chahbár point is low and rocky, with sandhills, the coast to the eastward of it being of low cliff, and rising towards Kinj.

Chahbár town.—On the extremity of Chahbár point is a small square tomb or mosque, and the coast thence trends to north-eastward for one mile, forming the south side of a little bay, at the bottom of which stands the town of Chahbár,† formerly a place of some trade, but now

* See plan on Admiralty chart, Maskat to Karáchi, No. 38; scale, $m=0.5$ inch.

† Chahbár, by the Arabs also Shahbár, was taken from the Balúchis by the Arabs at the end of the last century, and held by them until dispossessed in 1872 by the Persians, who now hold the fort with a small garrison. The town in 1872 was found entirely deserted and gone to ruin and the gardens left to decay, the inhabitants having removed to Gwádar, &c.

The Persians have built a new fort at Tís, on a hill commanding the valley through which is the pass from Chahbár to the interior, probably as less exposed to an attack by sea than the old fort. Tís was burnt and plundered by the Portuguese at the same time as Gwádar and Pasní; it is described as a city, and Pasní as a "rich and beautiful city," doubtless a great exaggeration, but as 50 vessels were burnt in the roads, it must have been of greater importance than now. See Manuel de Faria y Souza, Vol. II.

deserted. The fort is square, with towers at the angles, built of mud and stone and 300 yards from the shore, and around it are the ruins of the town. Close to southward of it are some gardens with many fruit trees, and a few date palms, extending for half a mile inland in a valley lying inside the coast hills.

The south side of the little bay is shoal, with rocky bottom, for 2 cables off shore, from the tomb on point as far as a little rocky point with a small date clump near it, just outside the fort. Beyond this the beach near the town is sandy; the best landing is near the date trees.

The land rises close to northward of Chahbár town to a high table land, already mentioned, the south brow is 840 feet high, and it is almost precipitous in places. Its base forms the north side of the little bay in which the town lies, with cliffs near the sea from $1\frac{1}{2}$ miles north of the town to Tís point, a cliff of light colour, 210 feet high, which forms the north extreme from Chahbár anchorage. The cliff falls back north of this point, running to eastward on the south side of a great valley in the hills, and on the north side of this are higher cliffs which trend to eastward away from the sea leaving the shore low and swampy.

Telegraph.—At half a mile south of the town is the telegraph office, a fine building with flat roof, available for messages to all countries. At a short distance to N.E. of the fort is a large white tomb with a dome, conspicuous from sea. These buildings are seen across the land when to south-eastward of the place. No supplies are obtainable here; there is good water in wells among the gardens.

ANCHORAGE.—The anchorage is with the tomb on Chahbár point south, and the white dome E. to E. by S. in 4 fathoms, sand, one mile off shore. Native vessels anchor nearer in, about half a mile off shore, in 2 fathoms.

Tís.—In the valley north of Tís point, about a mile from the sea, is a mud fort with a few huts and some trees and cultivation, the present village of Tís.* At the entrance of the valley a small hill rises in the middle, on which the new Persian fort is built, and in front of this is a shallow lagoon, the entrance of which is a mile from Tís point. It is entered by fishing boats at high water only.

From Tís the coast is low and swampy all round the head of the bay; at six miles from Tís point is the mouth of a creek called Khaur-Namak, a small river after rain.

* There are some small excavations in the clay cliffs on the north side of the valley, which have been used as Hindu temples. They do not appear to be of any great antiquity. The entrance of the valley was formerly defended by a rough wall, now ruinous, built from the north cliffs to the water. The pass from the interior to Chahbár leads up this valley, and crosses the hill to the sea-shore just north of the town.

RÁS-KÚHLÁB, also called Mutahaddim and Báragín, the west point of Chahbár bay, is of low cliffs, and has no reef off it; from it the cliffs trend to N. and N.W., increasing in height to a point of cliff $3\frac{1}{4}$ miles to north-westward, which is 270 feet high; from this the cliff runs to westward towards Pazim, the low coast commencing in the bay north of this point; inland of these cliffs it is quite low between Chahbár and Pazim bays.

Native vessels anchor for shelter off Kúhláb point in northwesterners.

SOUNDINGS.—The depth at the entrance of Chahbár bay is 8 fathoms, and decreases regularly to 6 fathoms off Tis point, with muddy bottom. To northward of this point a rocky bank extends off shore from two to three miles, having $2\frac{1}{2}$ to $1\frac{1}{2}$ fathoms on its edge and 4 to 5 outside; it extends to northward for four or five miles. Rás Kúhláb has 3 fathoms at a quarter of a mile off, with 8 close outside, and the cliffs north of it are safe to approach to half a mile, but beyond them the west and north sides of the bay are shoal, there being only 3 fathoms at nearly two miles off shore.

DIRECTIONS.—The telegraph office at Chahbár is visible about 8 miles; the coast on both sides of the entrance is safe to approach, but is not easily seen at night, especially the two low entrance points, which are of light colour. In approaching from the southward, the lead should be kept going quickly, 20 fathoms being only 2 to 3 miles off; in the day time the eye should be a sufficient guide as the coast is bold. In rounding Chahbár point a vessel should not come under three quarters of a mile, as a spit extends about 3 cables, outside which are rocky overfalls off the pitch, or with the tomb bearing E. by S. At the above distance the water will shoal to 5 fathoms, hard bottom, on the tail of the spit, and then deepen to 7 fathoms, mud, when she should haul in for the anchorage.

Tides.—It is high water at full and change about $9\frac{1}{2}$ hours, rise and fall 9 feet. The stream is not perceptible.

CHAHBÁR to RÁS-MAIDÁNI.—The coast* from Chahbár to the Sadaich river, which is 30 miles to the westward of Maidáni, is under the chief of Geh† who is tributary to Persia. There are several villages near the coast, and some cultivation, large numbers of camels are bred, also flocks of sheep and goats, wherever pasture is procurable.

RÁS-PAZIM, also written Fazim, is a cliff about 300 feet high, forming the west end of the Kúhláb promontory, which is similar in nature to the others on the coast, but the low isthmus is much wider. It is 11 miles in length in a W.N.W. and E.S.E. direction, and decreases in height towards its south and south-east sides, which are only slightly elevated above the sea. Its summit is of uneven height, and the outline somewhat irregular.

* This district is sometimes called Kibleh, with reference to its situation as the westernmost part of Makrán.

† This chief is also over those of the Báhu-Dashtiyári districts.

RÁS-GÚRDÍM, called also Ráshidí, is another similar promontory, but quite table-topped, and nearly level ; it is 150 feet high, almost inaccessible on all sides, and extends 6 miles, nearly east and west, by only one broad, and it is joined to the main by a low sandy isthmus. Between this point and Rás-Pazim a deep bay is formed with low sandy shore, 5 miles wide between the points. In this bay behind the eastern promontory is the little fishing village of Pazim, and on the west side there are a few huts on the sandy isthmus behind Gúrdím. At $1\frac{1}{2}$ miles to N.E. of these, is the mouth of Kair or Kír river, a saltwater creek, which has a long course from the interior running past the town of Geh. The village and district called Kair, are on the right bank of this river, 4 or 5 miles inland, where there is much cultivation.

Pazim bay has 5 fathoms in the entrance, decreasing regularly to 3 at one to $1\frac{1}{4}$ miles off the low shore at the bottom. Rás-Gúrdím has 4 and 5 fathoms within half a mile outside, and has no reef off it. Rás-Pazim has 5 fathoms at one mile off, and the whole headland between it and Kúhláb point may be approached to that distance safely. A vessel may anchor in this bay in 4 fathoms mud, with Gúrdím east extreme bearing S.S.W.

Báklang rock.—A dangerous isolated rock nearly awash at low water, and called by the fishermen Báklang,* lies $2\frac{1}{2}$ miles S.E. $\frac{1}{2}$ S. from the east point of Gúrdím; it has 6 fathoms close to all round, and is not much larger than a boat. When the water is smooth it does not show at all. The following leading mark leads directly over the rock. The low brown hills to eastward of Rás-Tank, half their breadth open from the west cliff of Gúrdím. In clear weather a sharp asses' ears peak on Kúh-Kalát called Bír will be then seen in the gap between these marks, the right hand of the two highest peaks being on with Gúrdím west cliff, and three only being visible. When just outside the rock a fourth peak of the Bír hills opens out from Gúrdím.

A ridge or tail without any danger extends to southward from this rock some distance, deepening gradually ; there are 14 fathoms on it at 4 miles off, after which the edge of the bank goes off quite steeply, there being no bottom at 3 miles farther out. On either side of this ridge there are 20 to 30 fathoms, when 14 fathoms are got on the bank. By night a vessel should not approach Báklang rock under 20 fathoms soundings.

The west point of Gúrdím headland is somewhat higher than the eastern, and is also a vertical cliff ; it has a bay to the northward of it, and the coast is of low sandhills from thence to Rás-Tank forming a slight bay. Near Gúrdím is a creek, a branch of the Kair river.

* The author was informed by the fishermen, who pointed out the position of the rock by *transits of objects on the land*, that many native vessels were wrecked on this dangerous rock. It is probable it could easily be removed by blasting, being so small.

Inland of Gúrdim and Pazim the great plain continues, with a few villages or settlements, and at about 12 miles from the sea are mountains running nearly parallel with the coast, part of the same range seen at Chahbár. In front of these are some lower hills, one of which, of conical form and six miles inland, is called Kúh-Milín.

RÁS-TANK is a small low rocky peninsula with sandhills about 30 feet high which projects beyond the line of coast, and is joined to the main by a strip of sand only 50 yards wide. It is three-quarters of a mile in extent east and west, and there are no houses visible from sea; the little village of the same name being about 3 miles up a large creek or river which enters the sea close to eastward of this point. The bar of the river is shallow but sheltered by the cape; there is deep water inside, where it is a quarter of a mile wide. The river runs to north-eastward near its mouth, but its course is not known inland. It is frequented by fishing boats from Maskat, which trade with the village, and with people from the interior; they bring dates, cotton cloth, &c., and take away pish, and ghee, &c.

At 4 miles to north-eastward of Rás-Tank is a small group of brown-coloured hills of irregular shape, and lying 2 miles inland; from a distance they have been mistaken for Rás-Tank. A few large trees and some dato palms are seen to the westward of these hills.

Rás-Tank is safe to approach on the south side to half a mile or in 7 fathoms, there is a small spit and shoaler water off the east end of the peninsula, where 4 fathoms will be found a mile off with the point bearing West. The little bay* on the west side is shallow, and shoal water extends about a mile to the westward of the bay, but there is no shoal water outside the line of the cape.

The bank of soundings is only 6 miles wide off this point, and at night a ship should not come under 30 fathoms; in fact the lead is of little use unless kept constantly going; the low point is difficult to make out.

A vessel might anchor in 5 fathoms, 4 cables to south-east of the cape, a small vessel might perhaps enter the river, but it would require to be previously buoyed.

Aspect of Coast.—Rás-Tank is not visible more than 6 or 7 miles, and the coast range of mountains, 15 miles inland, is lower and less conspicuous here, and also between this place and Maidáni. The above little brown hills are a good landmark, and to westward of the cape a great ridge of white clay cliffs of most striking outline extends for some 20 miles parallel to the coast, and about 6 miles from the sea. The range is called Kúh-Kalát, and the highest part is called Bír, probably after a small district of that name lying to the northward of the range. It is 1,680 feet high

* According to Brucks' survey an extensive reef is shown here.

and cannot be mistaken, although it is difficult to identify any of the peaks, as they change in appearance from different points of view; these hills are visible 40 miles.

RÁS-TANK to RÁS-MAIDÁNI.—The coast has a N.W. direction for 3 miles from Ras-Tank, and there are cliffs near the sea, forming the termination seaward of some low table hills lying north of that cape; it then trends to westward, forming a slight bay, to a bluff point of small elevation called Makkí, which is 17 miles from Tank; the intermediate shore being low.

Between Makkí and Rás-Maidáni is a long extent of low sandy shore, with creeks and backwaters inside, forming the mouths of a river of considerable size, which has a course from the interior of more than 100 miles. There are two mouths, Khaur-Rábij and Khaur-Gálag, the former of which, called also Rápch or Ráfch, is 7 miles east of Rás-Maidáni. Owing to its large tidal backwater this is the more considerable of the two, but the bars of both are shallow, although they have deep water inside. Rábij might be entered by small vessels, but the country near is a desert, and it is at present of no practical importance, being only frequented by fishing boats. Khaur-Gálag has a small village near the mouth, and a few boats belong to the place, which is about 6 miles to the eastward of Rábij.

A spit extends off the entrance of Khaur-Rábij for upwards of a mile, on which the water breaks; the Gálag creek has not been examined. Inland of Rábij is a small district with several hamlets and groves of date palms, called Kárwán.

RÁS-MAIDÁNI is a broad cape, having a sea face of about 5 miles, 155 feet high, close to the sea, lying east and west; the eastern half has cliffs, the western part being a low sandy point with small bushes. The hills which end in these cliffs are table-topped, about 200 feet high, and of brown colour, with white cliffs. They end 3 or 4 miles inland, and on either side of this lump of high land the coast is low for many miles; at the back of them, the great plain adjoining the sea continues and extends about a degree to the westward. There is a large date grove to westward of the cliffs, at a little distance inland.

SOUNDINGS—CAUTION.—Off the east end, where the cliffs are, there is no danger, 3 fathoms being only half a mile off shore, and the soundings regular, but from the low west point, a shoal flat extends 3 miles off shore to south-westward, having at that distance only 3 fathoms on its edge with $2\frac{1}{2}$ close inside; bottom clay. As there are 200 fathoms at 5 miles outside this flat, caution is required in passing this point, especially at night. The soundings between Rás-Tank and Rás-Maidáni are regular, the edge of the bank being 15 miles from the bottom of the bay between the capes; the shores of the bay may be approached to $1\frac{1}{2}$ miles. In passing along the

coast, 20 fathoms will be a good depth anywhere to eastward of Rás-Maidáni, but off the flat, the soundings are but little guide.

RÁS-MAIDÁNI to RÁS-JAGÍN.—Between these two points the shore is very low, and forms a slight bay; the only hills near the sea being a small cluster of table-topped peaks, called Kúh-Gukardi, about 17 miles to north-westward of Maidáni, and about 200 feet high; they stand about 2 miles from the sea, and are not generally seen unless the vessel is standing well into the bay.

To westward of these is the Sadaich river or Khaur, which, like all the others on the coast, is a tidal creek with shallow bar, the ground near the mouth being swampy. Some trade is carried on here by boats from Maskat, some of about 50 tons burden, which take away pish, mats, salt fish, &c.

The course of this river from the mountains is not known; it is the boundary of the Geh territory, or Makrán* proper, the country to the west of it being known as Báshakird, a very mountainous district, and utterly unknown; the narrow plain between the coast and the mountains is called Bíyábán, and belongs to the Chief of Jáshak, who is under the Persian government.

On the banks of the river, some distance inland, is the district of Sadaich, with a village, date groves, and some cultivation.

ASPECT of COAST.—The coast range lies 12 to 14 miles inland, having a quoin-shaped mountain with a great valley on its west side at 28 miles N.N.W. from Maidáni; this range approaches the coast towards Jagín, and is not further remarkable in outline. Inland of this range stands the great mountain called Jabal-Sháhu or Gúhkúh,† 6,400 feet high, and visible 80 miles. It is apparently nearly detached from any other mountains and stands 30 miles inland. From the south-eastward it forms with a great bluff on its east side, the top sloping to westward, but from the westward the bluff is not seen, and it has a rounded shape. It cannot be mistaken, being so much higher than any of the other land.

SÚRAF, a range of white sandhills, which have no vegetation, and are about 100 feet high, extend from the Sadaich river for 6 miles along the beach to westward. Water is found by digging in the hollows of these sandhills.

Beyond these the coast is very low, with mangrove swamps and numerous creeks, as far as Jáshak east bay. All these creeks have names, and are resorted to by boats to cut firewood, and to fish, &c., but are not

* On the first range of hills near this river is said to be a pillar, called Malik Chadár, an ancient land mark on the boundary line of Makrán, the words mean *King's Pillar*.

† A Balúch name.

of any importance ; they are all mouths of streams from the Báshakird mountains ; the Gábríg and Jagín rivers are the principal ones.

RÁS-JAGÍN is a very low rounded sandy point with small tufts of grass growing on it ; the mouth of a creek is close to the point, and a small spit extends near half a mile off it to W.S.W. Inland of Rás-Jagín is a mangrove swamp several miles in extent, and there is a plain beyond that to the foot of the hills. As the low point is only visible 3 or 4 miles, a ship should not be misled as to her distance off by the appearance of the distant hills. The edge of the bank of soundings is only 4 miles off this point, which requires a wide berth at night ; it is not easy to make out the point, unless close in, as it is not well defined, and by day the eye is the best guide. From the spit off it Jabal-Sháhú bears N.N.E. $\frac{1}{2}$ E. From this point to Súraf the shore runs nearly straight.

SOUNDINGS—The soundings between Maidáni and Jagín are regular ; in the centre of the bay the edge of the bank is 19 miles off, shoaling to 20 fathoms at 5 to 7 miles, and 3 fathoms at $1\frac{1}{2}$ to 2 miles, but near Jagín the water is deeper, and off that point there are 18 to 20 fathoms within a mile, so that the lead is little guide, and caution is required passing it.

RÁS-JAGÍN to CAPE JÁSHAK.—The coast between these points forms a great bight, known as Jáshak east bay, which has deep water, there being 20 fathoms at 2 to 3 miles distant, and no bottom at 3 to 6 miles. The east side of the bay is low, being a continuation of the land east of Jagín, the sandy beach drying off upwards of half a mile opposite the entrances of the creeks. Khaur-Lásh is a large creek 7 miles N.W. of Rás-Jagín, and the large creek near that point is probably the Jagín river.

At the head* of the bay the hills approach within a mile of the coast, and the coast range ends here or turns inland in a ridge of white cliffs, highest part 1,720 feet. It is called here Kúh-Úshadán, after a small hamlet, with a few date trees, lying between it and the sea ; from the westward it has a quoin shape.

The west side of the bay is a rocky point about 20 feet above the sea, and level, with sandy beach and low cliff in places. It extends in a nearly straight line from Jáshak point to the head of the bay, in a direction N.E. by E. $\frac{1}{2}$ E. There is good anchorage and shelter in westerly winds all along this side, close in, in 6 or 8 fathoms, the 20-fathom line being only 2 miles off shore. It is open to the eastward, and there is always a light surf on the beach, which becomes heavy during the monsoon, although the swell is only slightly perceptible as a ground swell.

* In this bay, and about three miles to eastward of Úshadán, are some hot springs on the sea shore at high-water mark, temperature 128°.

MAKSÁ, called also **CAPE JÁSHAK**,* is the south-western extreme of a projecting cape dividing the bay just described from a great bay on its west side, known as Jáshak bay. There is a small tomb,† rudely built on the extreme point.

Telegraph.—A fine range of flat-roofed telegraph buildings has been built one third of a mile to N.E. of the tomb, which are visible 9 miles. Messages can be sent from here to all parts. A small village has sprung up since the establishment of the telegraph station, and a few supplies can be got, such as sheep, fowls, a few vegetables, and various articles used by Europeans, but not in large quantities. A flag is hoisted on a tall flagstaff to westward of the office, and a blue light at night would be answered and a light shown.

Water.—The best water is got from wells, one mile N.E. from the telegraph office, near two small date clumps. There are two banyan trees to north-eastward of the office distant $1\frac{1}{2}$ and 3 miles, near which are some huts of herdsmen, and other wells. A few fishermen also live on the point.

There is at present fortnightly communication‡ by sailing boat with the mails, but it is proposed the Persian Gulf mail steam vessels shall call here. There is a little rocky point in Jáshak bay half a mile north of the tomb, beyond which the coast forms a small bay, where there is good landing only a quarter of a mile north of the telegraph office, and between this point and the old tomb is a small rocky flat extending 8 cables off shore with 3 fathoms on its outer edge, and $2\frac{1}{2}$ close inside it.

ANCHORAGE.§—The anchorage in Jáshak east bay is good during a shamál, but in a winter easterly gale it would be quite exposed. A vessel should anchor near a mooring buoy which has been laid down as a guide, or make fast to the buoy, so as to avoid the telegraph cables, which are landed at a small square building on the east beach, opposite which no ship should anchor. The landing is bad on this side, the beach being rocky, and there is always more or less surf, for which reason it is preferable generally to anchor or for boats to land in west bay.

A convenient anchorage for a vessel not drawing more than 15 or 16 feet is with Jáshak point bearing South in $3\frac{1}{2}$ fathoms, and half a mile off shore; in entering this anchorage she will pass over 3 fathoms low water: a larger vessel must anchor a mile to N.N.W. of the above berth. A

* This name is often pronounced, and sometimes written, Jách or Yách.

† Of a Musulman saint, called Shaikh S'ayed; it is of some antiquity, for the master of the ship *Roebuck*, of London, states that on the 15th December, 1620, they saw Cape Jasques (*sic*), having upon it a tomb, or old square flat-roofed house. See Purchas I., 723.

‡ Any ship passing would confer a favor by calling for letters; the detention would be trifling.

§ See plan on Admiralty chart, Maskat to Karáchi, No. 38; scale, $m=0\cdot6$ in.

sailing vessel in months December to March should be able to weigh and move round the point if a heavy shamál (or northwester) set in, of which she could get warning by telegraph from Hanjám.

Jáshak west bay.—From the landing place near the telegraph office the shore is of low sandhills, and runs to northward for $3\frac{1}{2}$ miles to the entrance of a small creek, it then curves round to the N.W. and westward, having sandhills for the first 3 miles, after which it is a mere strip of low sand all the way to Rás-al-Kúh with mangrove swamps inside it, and admitting several creeks; the largest of these, called Khaur-Hamad, is 8 miles east of Rás-al-Kúh, and is frequented by boats. At some distance inland are seen many date groves along most part of the coast. The bar of Jáshak creek is nearly dry at low water, and it has dry sands nearly half a mile off the mouth, but the water is deeper inside and it is used by native boats. It has a winding course of only 4 or 5 miles, and the land near it is a mangrove swamp.*

Tides.—It is high water at full and change at $9\frac{1}{2}$ hours, rise and fall 9 feet. The stream is weak, the flood setting to the westward, it increases in strength as Rás-al-Kúh is approached.

JÁSHAK fort is $6\frac{1}{4}$ miles N. $\frac{1}{4}$ E. from the old tomb; it is a small square mud fort with a few houses and date trees near it, and a range of white sandhills to south-eastward. It stands one mile from the coast, and is not always plainly seen from the sea. There are about 200 men here, all cultivators and herdsmen. A small traffic with Maskat is carried on, which was formerly more important.†

SOUNDINGS.—The soundings south of cape Jáshak are 50 fathoms, mud, at 2 miles, which depth is found close to the edge of the bank; under one mile from the point are rocky overfalls, but no danger, there being 5 fathoms within quarter of a mile. To westward of the point, outside the little spit, is a rocky flat, which extends 4 miles from the cape, deepening from $3\frac{1}{2}$ to 7 fathoms with overfalls, after which the water deepens rapidly.

MASON SHOAL.—Near the edge of this flat, and $3\frac{1}{4}$ miles W. by S. $\frac{1}{2}$ S. from the old tomb, is a small bank called Mason‡ shoal, which is a mile in extent, and has only 3 fathoms in one place, bottom rock, coral, and sand; it is steep-to on the south and west sides, 50 fathoms being only $1\frac{1}{2}$ miles off.

The soundings in Jáshak bay are regular after passing the point, but shoal, there being only 5 fathoms at 3 miles off, bottom mud. Between

* Jáshak bay was the rendezvous of the English ships trading to Persia before the Portuguese were dispossessed of Hormúz.

† The Chief is at present under the Persian governor of Mínáb, but formerly this was part of the territory farmed by Maskat from Persia.

‡ From Lieut. Mason, I.N., who discovered it in 1857.

this and Rás-al-Kúh the bank of soundings widens to 14 miles in breadth, contracting again off that point, where 100 fathoms are only 7 miles off. The water is shoal near the coast, 3 fathoms being one to $1\frac{1}{2}$ miles off, except at Rás-al-Kúh, where there are 20 to 30 fathoms at that distance. The bottom is also somewhat irregular, there being several rocky overfalls, but all with deep water over them except the following :

GAH-HAH SHOAL.—A small 9-foot patch with soft bottom lies 3 miles off shore, $16\frac{1}{2}$ miles from cape Jáshak and 10 miles from Rás-al-Kúh. It is less than a ship's length in extent, and has 13 fathoms close to all round. A vessel should not shoal less than 20 fathoms when passing this danger. From it, Kúh-i-Mubárák hill bears N.W. and Jabal-Khaur-Hamad N.N.E.; or, the west end of the latter hill is on with a remarkable valley or gap in the hills to westward of Bahmadi mountain. It is known to the natives as Gah-hah.*

ASPECT OF COAST.—There are several remarkable mountains and hills on this part. Jabal-Dangiyyah or Quoin hill, an isolated mountain 1,630 feet high, is a very remarkable landmark N. by W. $\frac{1}{4}$ W.,† $12\frac{1}{4}$ miles from Jáshak point, it has a great bluff to the westward, and cannot well be mistaken, as it shows well against the land behind, it is visible 40 miles, and there is a great valley between it and Kúh-Úshadán, behind which are seen more distant ranges. Separated from Jabal-Dangiyyah by a valley or gap with precipitous sides, is a remarkable high mountain, 3,100 feet high, whose summit is 7 miles N.W. by N. from the former, called Jabal-Bahmadi; it has a long slope to westward, and a very serrated outline. On its southern slope is a curious pillar of rock $3\frac{3}{4}$ miles N.W. by W. from the Quoin hill. The mountains hence recede to the north-westward leaving a valley between them and the coast ranges near Rás-al-Kúh. From Jáshak, Jabal-Bís is seen through the valley between Quoin hill and Bahmadi.

Jabal-Khaur-Hamad is a narrow ridge of hills about 300 feet high, extending nearly 2 miles East and West, with cliffs to the southward; they stand 4 miles from the sea and 9 miles W. by S. from Quoin hill. It is a mark for Gah-hah shoal.

RÁS-AL-KÚH is a very low point, at which the coast suddenly changes its direction to N.N.W. All the land for several miles inland is swampy, excepting the low strip of sand with tufts of grass forming the shore. A small creek, frequented by boats, has its mouth close to northward of the point, having dry sands 3 cables off its mouth. The date grove of a small

* This is the shoal described in Horsburgh, Vol. I., p. 424, 8th edition, as a rocky shoal, and there called Kúh-i-Mubárák shoal. It has been recently examined by the author.

† When the highest part is in transit with the old tomb it bears N. $13^{\circ} 48'$ W. true which bearing may serve to adjust compasses.

village is seen to north-eastward, distant 2 to 3 miles. The point is steep-to; a vessel might anchor a mile to eastward of the point, and half a mile off shore, in 6 to 10 fathoms, but there is not much shelter during a shamál.

TABLE of POSITIONS on the MAKRÁN COAST.

Place and Station.	Heights in Feet above Sea.	Latitude.	Longitude.
Gah-hah, or Kúh-i-Mubárák, shoal	—	25 42 12	57 27 55
Jabal-Bahmadi, summit	3,100	25 55 45	57 38 0
Jabal-Dangiyyah, ditto	1,630	25 50 0	57 42 20
Mason shoal	—	25 37 10	57 42 0
Jáshak fort	—	25 44 32	57 46 10
— Ditto point, Telegraph Sup. house	—	25 38 19	57 45 42
Kúh-Ushadán, highest	1,720	25 45 1	57 56 6
Rás-Jagin, S.W. point	—	25 33 0	58 5 30
Jabal-Sháhú, summit	6,400	26 6 40	58 24 20
Sadaich river, entrance	—	25 33 10	58 40 0
Rás-Maidáni, east cliff	155	25 23 42	59 6 27
Kúh-Kalát, high peak called Bír	1,680	25 29 45	59 40 0
Rás-Tank, E. rocky point	—	25 19 49	59 53 21
Rás-Gúrdím, E. point of cliff	150	25 18 58	60 11 20
Rás-Pazim, W. point of cliff	—	25 20 0	60 16 45
Báklang shoal, rock awash	—	25 17 3	60 13 6
Rás-Mutahaddim, S.E. point	—	25 16 29	60 27 45
Chahbár, telegraph office	—	25 16 43	60 37 8
High quoin-shaped peak near Chahbár,	2,400	25 38 0	60 29 0
Kháki-kúh, highest peak	2,030	25 21 50	60 57 45
Rás-Barís, S.W. point	—	25 7 0	61 10 0
Rás-Fastá, south point	45	25 3 2	61 25 8
Rás-Fastá, castle hill near	430	25 15 58	61 23 0
Gwatar village, tower	—	25 8 52	61 30 10
Rás-Jiyúni, point	—	25 0 30	61 42 15
Ras-Gunz, ditto	—	25 1 56	61 50 0
Rás-Pishkán, Extr. pt. H.W.M.	—	25 5 40	62 5 7
Garr, mountain, top notch	1,550	25 22 30	62 8 30
Kúh-Saiji, east peak	3,260	25 33 0	62 18 20
Rás-Kamiti, point	—	25 5 48	62 14 57
Gwádar, new telegraph office flagstaff	—	25 7 19	62 19 10
Rás-Núh, tree	280	25 5 42	62 22 39
Jabal-Mahdi, highest peak	1,375	25 12 32	62 24 51
Sar, highest part bluff	560	25 12 52	62 28 0
Kuh-Darám, barn-shaped peak	3,200	25 25 45	62 35 14
Ras Kappar, W. bluff	800	25 14 15	62 44 5
Rás-Shahíd, S.W. point	—	25 12 0	62 58 42
Rás-Shamál-bandar, S.E. point	—	25 13 12	63 4 20
Jabal-Zarrain, E. brow	—	25 12 24	63 29 18
Pasni, telegraph office	—	25 15 52	63 28 5
Astálúh island, W. peak	256	25 6 11	63 49 0
Webb bank	—	25 2 10	63 52 36
Rás-Sakanni	—	25 13 0	64 21 30
Ormárah, S.W. point	1,400	25 8 30	64 33 10
Ditto, telegraph office	—	25 11 55	64 36 30
Ditto, E. point	—	25 10 55	64 41 0
Khaur-Gurád, entrance	—	25 19 30	64 46 50
Khaur-Batt, telegraph hut	—	25 18 22	65 5 20
Rás-Malán, S.E. point	Highest part 2,050	25 18 30	65 12 20

Place and Station.	Heights in Feet above Sea.	Latitude.	Longitude.
High square mountain to northward of Malán.	3,800	25 35 0	65 14 40
Jabal-Hingláj, highest	3,500	25 30 50	65 24 45
Rás-Kacharí, S.E. point	—	25 22 20	65 46 0
Sunmiyáni, Jam's house	—	25 25 19	66 35 7
Chír Churnah, hill station	—	25 1 49	66 40 43
Churnah Island, peak	580	24 53 46	66 35 52
Rás-Muwári (C. Monze), peak	537	24 50 3	66 39 26
Manora Lighthouse	120	24 47 21	66 58 15

These longitudes depend on Karáchi, which is determined from Madras as follows :—

Longitude of Madras according to results of Taylor's observations - 80 14 19 + 33
 Diff. Manora lighthouse and Madras by Grand Trig. Survey of India - 13 16 4
 Long. Manora lighthouse - - - - 66 58 15 + 35

til Long. of Madras 80 14 57.3
 Longitudes in this list require
 an increase of 80 14 57.3 - 80 14 19 =
 = 323

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